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HE NATIONAL METALWORKING WEEKLY . OCTOBER 14, 1954

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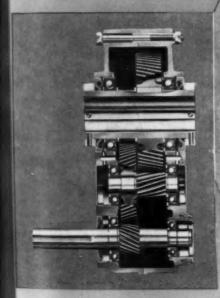
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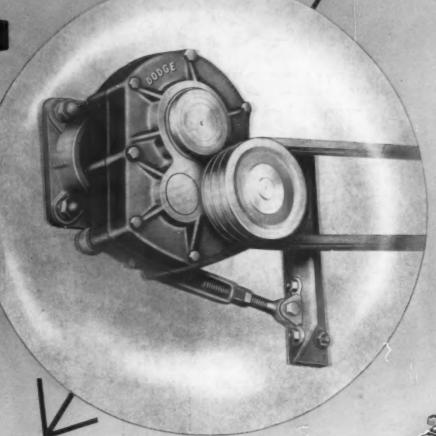
N AGE

In

eed Reducers



few Departure ball bearings are used in seven tasic sizes of the Dodge single and double reducon speed reducers, handling from 1 to 43 horseower at output speeds from 12 to 330 r.p.m.



with NEW DEPARTURES

Manufacturing Corporation's Speed Reducers make good use gn advantages offered by New Departure snap-ring ball bearings.

The prings locate the bearing in the case, eliminating the need for ment. Doing away with threaded or shim-type devices permits straighth boring of the housing. Thus split-case construction is highly cal, and assembly is greatly simplified. The result is a rigid, highly the unit, and one in which costs have been kept to the minimum.

what New Departure can do for your product.
ith your New Departure sales engineer—today!

NEW DEPARTURE BALL BEARINGS

NEW DEPARTURE . DIVISION OF SENERAL MOTORS . SRISTOL CORNECTICS!

Plants also in Meriden, Connecticut, and Sandusky, Ohio
In Canada: McKinnon Industries, Ltd., St. Catharines, Ontario

THE ROTOR B-7 VERTICAL

AIR GRINDER AND DISC SANDER



than any other tool of its type!

FOR sanding, cup wheel grinding, wire brushing, cut-off work.

FEATURES. Light weight...easy to handle. Positive, direct-acting governor...less maintenance, safer. Dead handle can be removed for fast, one-handed operation on "feathering" jobs.

Available with two types of handles...straight (shown above) or safety (shown at right).

Has automatic built-in oiler.

Here's the featherweight with the heavyweight punch.



SPECIFICATIONS

WEIGHT 634 lbs.

HEIGHT 7 inches overall

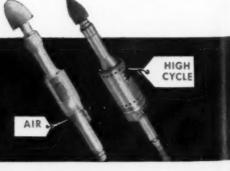
SPEEDS 8000, 6000 or 4500 rpm.



ASK FOR CATALOG 47

THE ROTOR TOOL CO.

CLEVELAND, OHIO





Bethlehem High-Strength Bolts were used in erecting this 23-story office building, principal structure of Denver's Mile High Center. With bolting keeping pace with erection crews, the 4600-ton steelwork was completed in 82 working days.

Steel erection moves fast with High-Strength Bolts

teel erection moves rapidly and smoothly when Bethlehem High-Strength Bolts are used to join the structural members.

Bethlehem High-Strength Bolts save time and promote economy because they can be installed quickly by two men, one using a holding wrench, the other a pneumatic impact wrench. The hexagonal-head bolts are inserted with two hardened washers, one of which is placed under the head, the other under the hexagonal nut. When properly torqued, the bolts remain tight indefinitely.

Bethlehem High-Strength Bolts are furnished in carbon steel in all sizes from ½ in. to 1¼ in., and in varying lengths. Heat-treated by quenching and tempering, they fully meet the requirements of ASTM Specification A-325.

Additional information about Bethlehem High-Strength Bolts is yours for the asking. Simply get in touch with the Bethlehem sales office nearest you.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast
Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

Bethlehem Botts Are Good Botts



rpm.



DIGEST OF THE WEE

Vol. 174, No. 16, October 14, 1954

Starred items are digested at the right

EDITORIAL

| Is | the | Inventory | Recession | Over? | | | | | 0 | 0 | | 7 | 7 |
|----|-----|-----------|-----------|-------|--|--|--|--|---|---|--|---|---|

NEWS OF INDUSTRY

| *Special Report: Magnesium At Crossroads | 87 |
|---|-----|
| *Labor: Steel Employment Starts Rise | 89 |
| *Raw Materials: Find Price Cutting Tough | 90 |
| *Manufacturing: Electronics Sales Stay High | 93 |
| *Management: Problems of Joint Ownership | 94 |
| *Production: Wire Sales on Rebound | 97 |
| Expansion: How Job Machine Shop Made Good | 99 |
| Industrial Briefs | 106 |
| Personnel: Iron Age Salutes | 123 |
| Iron Age Introduces | 125 |
| Clearing House | |

NEWS ANALYSIS

| MEALS WINNELDIS | | | | | | | | | | |
|--------------------------|--|---|--|-------|--|---|--|---|---|-----|
| Newsfront | | | | | | 0 | | | | 85 |
| *Report to Management | | ۰ | | ٠ | | | | | | 105 |
| Automotive Assembly Line | | | | | | | | | | |
| This Week in Washington | | | | | | | | 0 | ٠ | 113 |
| West Coast Report | | | | | | | | | | |
| *Machine Tool High Spots | | | | | | | | | | 119 |

TECHNICAL ARTICLES

| *Process Control Lowers Stainless Making Costs | 133 |
|--|-----|
| *Cold Treatment Improves V-Block Performance | |
| *Zinc Diecastings Lower Assembly Costs | |
| Semicontinuous Processing Improves Strip Steel | 140 |
| *Carbides Wear Resistance Uses Grow | |
| *Steel Engineers Study Production Needs | |
| Technical Briefs | 158 |

MARKETS & PRICES

| *The Iron Age Summary—Stee | ı. | O | ut | lc | 0 | k | | 0 0 | 0 | 0 | 1/3 |
|------------------------------|----|---|----|----|---|---|--|-----|-------|---|-----|
| *Steel Product Markets | | | | | | | | | | | 174 |
| Comparison of Prices | | | | , | | 0 | | | 0 | 0 | 175 |
| *Nonferrous Markets | | | | | | | | | | | |
| Iron and Steel Scrap Markets | | | | | | | | | | | 178 |
| Steel Prices | | | | | | | | | | | |

REGULAR DEPARTMENTS

| Dear Editor | | | | | | | | | | | | | , | |
|-------------------|---|--|---|--|--|--|--|---|---|---|--|---|---|------|
| Fatigue Cracks | | | 4 | | | | | 0 | D | 0 | | 0 | | - 11 |
| Dates to Remember | ٠ | | | | | | | | | | | | | 13 |
| Free Literature | | | | | | | | | | | | | | |
| New Equipment | | | | | | | | | | | | ٠ | | 16 |
| | | | | | | | | | | | | | | |

INDEX OF ADVERTISERS 202

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THE IRON AGE, published every Thursday by CHILTON CO. (INC.), Chestnut a 58th Sts., Philadelphia 39, Pa. Entered as second class matter, Nov. 8, 1922, at the Post Office at Philadelphia under the act of March 3, 1879, 85 for 1 year, 88 for 2 years in United States, its territories and Canada; other Western Hemisphere Countries, 815, other Foreign Countries, 825 per year. Single copies, 50c. Annual Review Issue, \$2.00. Cables: "Ironage." N. Y.

Address mail to 100 E. 42 St., N. Y. 17, N. Y.

NEWS DEVELOPMENTS

MAGNESIUM INDUSTRY AT A CROSSROADS — P. ij Shutdown of the nation's largest magnesium plan looms unless Defense Dept. issues an edict to keep running. If the Velasco, Tex., plant closes, output widrop below consumption; if it keeps running, deman isn't enough for full economic operation. Government edict would require new stockpiling to provide adequate market. Dow wants to buy plant but Justice Dept. say "No." Yet nobody else would buy it or any other magnesium plant.

PICKUP STARTS IN STEEL EMPLOYMENT — P. 89
Steel mill production and employment are beginning to
reflect the pickup in finished steel demand. Producers
are adjusting melt and rolling schedules upward. But
the employment upturn is far from sensational and
probably will lag the rise in ingot rate.

FIRMS FIND IT'S TOUGH TO CUT PRICES — P. 90 Director of purchases T. W. Curtin of Yale & Towne Manufacturing Co.'s Materials Handling Div. appealed to 1200 vendors for price reductions. A sampling of replies revealed that labor and raw materials costs, plus uneconomic low production rates make it almost impossible to start a cost-cutting, price-reducing chain reaction of increased sales volume.

PROBLEMS OF JOINT PROPERTY OWNERSHIP — P. 94
Property owned jointly can't be controlled by a will.
It passes outright to other owners by law. What you should know about it is detailed in fourth article of an Iron Age management service.

BASIC FACTORS OF OUR FOREIGN POLICY — P. 18 Basically our foreign policy is: (1) and more close integrated with our military planning than ever beform And military plans hinge on foreign policy too. (2) We know that we have to more than match Russia's military strength. (3) We will not fight a preventive war. We will go to war only as a last resort, but we are the one who will determine what that last resort is. (4) We continue pushing for freer trade.

European exhibits at the Milan, Italy, machine to show this year featured more weight and power that American builders had expected. This appears to an overall trend in the European machine tool industry.

ENGINEERING & PRODUCTION

BETTER PROCESS CONTROL ASSURES ECONOMY—P. 133 Improved control of foundry operations can bring the advantages of extra low-carbon stainless steels in the 18-8 and 18-8mo grades to the user of cast parts on an economical basis. The production method worked out by one steel foundry requires close control of scrap and extra care in melting and cleaning.

V-blocks are basic tools in the measurement of metal parts, therefore, their accuracy is of the greatest importance. One company uses a cold-treating process to stabilize V-block dimensions during manufacturing or after they are in service.

ZINC DIECASTINGS LOWER ASSEMBLY COSTS—P. 138 Greater use of zinc diecastings is not only giving today's cars that sleeker modern appearance, but is simplifying assembly problems by providing better fits. Fitting problems are avoided and costs decreased.

CEMENTED CARBIDES BECOME MORE USEFUL — P. 142 Original high costs and limitations on sizes and shapes of carbide pieces no longer discourage their use in wear resistance applications. Used for many machine parts, they effect substantial savings in maintenance and downtime costs.

STEEL ENGINEERS STUDY PRODUCTION NEEDS—P. 145
The 1954 annual convention of the Association of Iron
and Steel Engineers in Cleveland, held Sept. 28-Oct. 1,
concluded with restrained optimism over the steel sales
picture. The slight upturn in the steel operating rate
was seen as an encouraging sign. Heavy emphasis
was placed on the need for maintaining high quality
standards that consumers insist upon.

MARKETS & PRICES

ELECTRONICS INDUSTRY SALES STAY HIGH — P. 93 Electronics equipment makers are talking confidently of a good sales year. At midyear sales were 17 pct above last year's levels. Transistors are moving into mass production, no longer held back by germanium capacity. Purchasing agents have been cautious but are now buying more.

WIRE SALES ARE SHOWING NEW STRENGTH — P. 97 August was a bad month for wire salesmen—even worse than July for some. But September exhibited a different pattern with wire rod sales running 30 to 40 pct ahead of July. Drawn wire will follow.

IMPROVEMENT IN STEEL DEMAND CONTINUES—P. 173 Improvement in steel demand during the past several weeks has been no flash in the pan. Production is expected to gain again this week. New strength is developing as a result of automotive orders, now being placed on a substantial scale. This is being felt particularly on sheets and bars. Additional gains in business are expected over the next several weeks, and the trend toward extended delivery will continue.

STEEL INVENTORIES ARE SEEN AT LOW EBB — P. 174 Producers feel reasonably certain that consumer inventories are now at working levels in all centers. Detroit buyers are beginning to jump into the brisk, busy sheet and strip market. Galvanized continues strong. Bars, merchant pipe picking up.

URGE DIVERSION OF STOCKPILE COPPER — P. 176
Secretary of Commerce Sinclair Weeks got a telegram
last week asking deferment of fourth quarter copper
stockpiling. Sender was National Electrical Manufacturers Assn. but it might have been the entire copperconsuming industry. Embargo of scrap copper export
was also requested. But the Administration's hands are
tied as long as any strikes continue.

NEXT WEEK:

SPECIAL METAL SHOW ISSUE ON AUTOMATION Automation—the most rapidly growing development affecting the entire metalworking industry—is the theme of THE IRON AGE's 1954 Metal Show Issue. Articles are designed to guide both small and large plants in its application and use. They will point out the tremendous growth in the application of automation beyond limits formerly thought possible.

AUTOMATION ARTICLES IN THE TECHNICAL SECTION will cover such subjects as: Factors which determine the use of automation; Future trends in machine tool automation; How automation principles apply to the smaller foundry; Automated tooling for induction heating; What direction automation will take in gear finishing and inspection; Automated hot and cold forging of small parts; Gaging and inspection.

October 14, 1954

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ON AGE

Goodbye to old quench and temper methods!

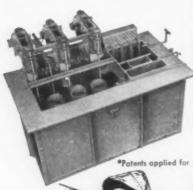
Martempering & Austempering & CUT COSTS
FOR THESE LEADING MANUFACTURERS!

Shown here are typical examples of important production savings made possible by Ajax Electric Salt Bath martempering and austempering. And there are hundreds more!

Here, briefly, are the reasons for the outstanding superiority of this method: First cost of equipment is only 1/2 to 1/5 that of any other conventional system! Distortion is so negligible that parts can usually be finish machined before hardening. Final grinding is seldom necessary. Scale, decarb and quench cracks are avoided. Ductility is increased.

write for technical bulletin #500, "The Present Status of Austempering and Martempering"—also list of documented case histories of martempering and austempering installations covering a wide variety of industries.

Now A SALT BATH QUENCH THAT SURPASSES OR EQUALS AGITATED OIL!

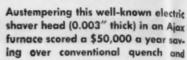


In this new Ajax CATARACT QUENCH furnace* the quenching power of molten salt (400°F and above) surpasses or equals that of agitated oil (100-150°F). This is achieved by a confined downward directional flow within a quench header. Let us prove it on your own products in the Ajax Metallurgical Service Laboratory.

Write for Bulletin 700, "Ajax Cataract Quench Furnaces."

AJAX

\$50,000 Saved annually!



temper methods! Austempering produced tougher heads, Rejects due to cracks were reduced from 3.6% to .05%. Uniform hardness is obtained. Distortion is easily held within specified limits.

Grinding TIME Cut 80%

Martempered in Ajax furnaces and drawn to Ro

62-63, these SAE-52100 bearing races show an average out-of-round distortion of only 0.002-0.003" in heat treating. Grinding time was reduced from 50 minutes to less than 10 minutes per race.

One Man HANDLES Production

Lawn mower blades (SAE-1065) are austempered in a fully

mechanized Ajax salt bath line to produce the critical combination of Rc 48-52 PLUS high ductility. Finished blades can be bent to horseshoe shape without cracking . . . and they're tough enough to cut nails! Production is 550 blades an hour. One man handles the entire job!

Zero Cracks and Higher Rc

Section size of this high alloy valve plate varies from 1/2" to 15%". Conventional oil quench and temper methods failed to produce Rc 58-60 without cracking. Martempering and drawing in Ajax salt baths produced a hardness of Rc 60-64... WITHOUT CRACKS!

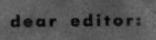
electric SALT BATH furnaces

World's largest manufacturer of electric heat-treating furnaces exclusively

AJAX ELECTRIC COMPANY 904 Frankford Ave. Philadelphia 23, Pa.

Associated Companies: Ajax Electric Furnace Corp. • Ajax Electrothermic Corp. • Ajax Engineering Corp.

SEE US AT THE METAL SHOW — BOOTH 752



letters from readers

Is Our Face Red!

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RON AGE

KS!

Look what you did!

On p. 93 of the Sept. 23 issue, column 3, you reported on Kaiser's new aluminum plant. Where did you put it? In Virginia.

Is it any wonder that we Mountaineers have had to devise an emphatic, albeit, sacrilegious designation for our state? WEST—BY ?*!—VIRGINIA!! We are not rebels, thank you!!! For your information, it has been WEST Virginia since June 20, 1863, in case you didn't know there is such a state.

From your Ivory Tower have you ever heard that our state is the home of such institutions as: International Nickel Co.'s rolling mills, Weirton Steel Co., Wheeling Steel Corp. U. S. Steel, Youngstown Sheet & Tube and ARMCO get coal in WVA. And DAGMAR is a product of Huntington, WEST Va. Also Ben Fairless married the daughter of a WEST Virginian, Dr. Henry D. Hatfield of Huntington.

The name of WEST Virginia cost us dearly too. After years of litigation, our state had to pay for roads built by the state of Virginia, during the pre-bellum (Civil War) period. This was the price we paid for staying loyal to the Union

Look at your map and try to imagine what these United States would be without the resources and products of WEST Virginia.

Well, I've got it off my chest; I feel better now. J. J. Reich, Reich Huntington Iron Works, Huntington, WEST Virginia.

We apologize to the entire state of WEST Virginia.—Ed.

Interesting Books

Sir

I would like to purchase the two books or pamphlets, "Make or Buy"

by J. W. Culliton, Harvard University School of Business Administration, Boston, and "Creep" by R. L. Dixon, Journal of Accountancy, July, 1953, as mentioned in your footnote on p. 111 in the Sept. 23 issue, as material worth reading.

Please advise at your earliest convenience where I may purchase these books or pamphlets. V. W. Kaiser, Plant Manager, Metal Frames Corp., Bay City, Mich.

The book "Make or Buy" may be purchased for \$1.50 from the School of Business Administration, Harvard University, Boston, Mass. The article "Creep" may be obtained by writing to the "Journal of Accountancy," 270 Madison Ave., New York.—Ed.

Stampings: Make or Buy?

Sir.

We were pleased to read in your issue of Sept. 23 on pp. 107 through 111, the article "Stampings—Should You Make Them or Buy Them?" by C. C. Caditz, the Northern Metal Products Co., Franklin Park, Ill.

The article is very timely as we are discussing with many of our customers and prospects this very subject of "make them or buy them."

Please advise us if reprints of this article are obtainable and cost for the same. We would like to obtain 25 or 50 copies. E. A. Meany, Sales Manager, Youngstown Metal Products Co., Youngstown

Reprints, while they last, will be available at a nominal cost.—Ed.

Alloy Fastenings

Sir:

Would you please send me 12 tear sheets of the article "High Temperature Alloy Fastenings Require Careful Fabricating, Precision Heat Treating" by T. W. Harker which appeared in the Sept. 16 issue. R. W. Elmenthaler, Liaison Engineer, Surface Combustion Corp., Toledo.



WITH ANTI-CORROSIVE STAINLESS STEEL FASTENINGS



SAVE INITIAL COST!

Superior production capacity and know-how means lower costs from Anti-Corrosive, America's oldest and largest firm dealing exclusively in stainless steel fastenings!



SAVE TIME!

IN STOCK inventory of more than 9,000 varieties and sizes of stainless fastenings means immediate delivery of your needs! Streamlined service on special orders, too!



SAVE OPERATING COSTS!

Anti-Corrosive's consistent top quality protects your production schedules, eliminates rejection headaches, means trouble-free operation!



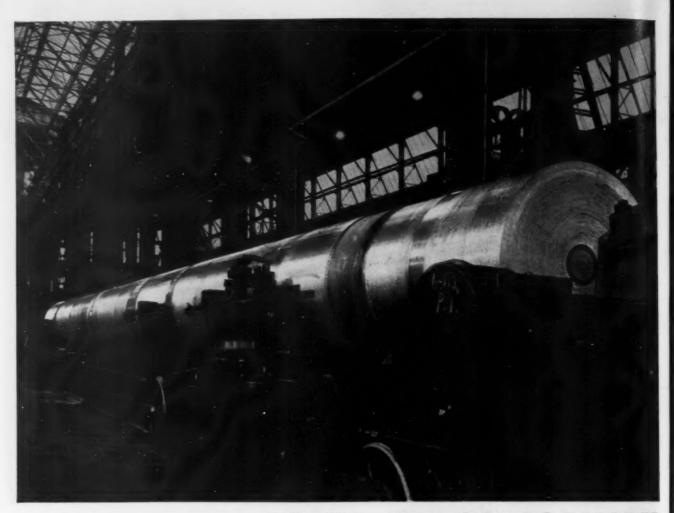
Write for FREE Catalog 54B, the one complete reference handbook to stainless steel

fastenings! Varieties, sizes, prices and discounts at a glance!



ANTI-CORROSIVE METAL PRODUCTS CO., INC.

Castleton-on-Hudson New York



Finishing Touch for 68-FT. PRESS COLUMN

Product—Column for Forging Press

> Overall Length— 68 feet

Body Diameter— 43 inches

Bore Diameter— 8 3/4 inches

Weight— 317,185 pounds This 158 ton shaft, one of the largest forgings ever made, is all-Midvale-produced from melt to bore. Its role, one of four supporting columns for a 25,000 ton forging press.

The shaft has been rough machined on a combination turning and boring lathe. As you see it the trephining of the hole has just been completed for the entire length of 68 feet.

This specialized operation climaxes a forging job that illustrates the completeness of Midvale's engineering and production facilities. First the ingot. Specification called for minimum yield point of 60,000 psi., ductility equal to 18% elon-

gation. To meet this Midvale metallurgists chose an alloy composition. More than 336 tons of nickel-moly steel were poured into the 116-inch ingot mold. Six forging steps later the rough shaft went to the lathe. Tensile tests showed the material produced an actual yield strength of 76,000 psi. and an elongation of 20%.

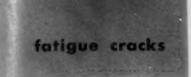
Midvale's forging facilities are at your service, too. Production, beginning at the furnace, is backed up by rugged machine tools and steel-making skill. Forgings of 300 or 300,000 pounds all get the same attention. Try Midvale's experience and facilities on your next forging job.

THE MIDVALE COMPANY-Nicetown, Philadelphia 40, Pa. Offices: New York, Chicago, Pittsburgh, Washington, Cleveland, San Francisco

MIDVALE

FORGINGS, ROLLS, RINGS. CORROSION AND HEAT RESISTING CASTINGS





Operation Mop-Up

Our 23 loyal readers responded most enthusiastically to our report of a few weeks ago on how to properly bring up a family or "how to manage a wife according to the Army Regulations." When we say enthusiastically we do not mean to imply that everyone agreed with our system. Matter of fact, for no reason that we can think of, the line was sharply drawn between the staffs and the distaffs. Jim Mull's secretary, Marilyn (both with the North American Manufacturing Company, Cleveland), who is very beautiful and not married, says "none of that stuff for me." "I'll stay right here at good ole North American," says Marilyn, or something like that.

But by far the great majority of our 23 loyal readers are with us and several have requested our Standard Operating Procedures so that they can immediately put the new system in effect.

As a matter of fact there's an Australian fellow who, apparently, was so taken with our idea of "tightening" things up around the home that he went several steps further. Here's his story:

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ON AGE

MOPPED UP WITH WIFE

SYDNEY, N.S.W. — Life will probably hold fewer headaches now for Mrs. Mona Sims, 25.

She won a divorce here after first testifying that her husband had banged her head against the refrigerator and beat her head like a drum with a dessert spoon.

The payoff came, according to Mrs. Sims, when her husband grabbed her, unended her, and then proceeded to use her head to mop up water on the floor.

by William M. Coffey

We will send Mr. Sims a personal copy of the Army Regulations with his name embossed in gold on the cover.

Automation

This hot subject will be the editor's pet in next week's feature Metal Show Issue. The last word. The latest dope. Special articles will highlight the latest advances . . . how to cut costs through automation . . . how the smaller plant can profit by its application . . . when it makes sense to use automation . . . right on through to automatic gaging and inspection. Take a good look. You'll keep this issue around for a long time. Keep sending the money.

Puzzlers

We are disappointed. Charlsie has been defeated. But the other members of the General Steel Castings IRON AGE Puzzle Club weren't, including Dale Letterman, Vineta Smallie, Shirley Lee and Orville Ganz. The puzzler? Sept. 23 about the two fellows digging the ditch. The answer? Angus digs 40 feet in the rocky soil to make his \$100 and Eustace digs 50 feet in the sandy soil to make \$75, then digs 10 feet in the rocky soil and makes \$25 more, which gives him his century spot. Other winners: Russell J. Cress (certainly good enough), G. R. Valentine, J. R. Williamson, N. P. Stauffer, Jr., Mike Waris, George Duncan, J. William Cast and Frank K. Remy and Jim Mull and Marilyn, maybe.

New Puzzler

Mr. R. A. Kozlik takes another tack with this one. *Object:* to punctuate the following group of words so that they make sense. No rearrangement of words is necessary.



RIGHT DOWN THE LINE!

The METALWASH multi-stage Spray Pickling Machine illustrated above prepares refrigerator liners for porcelain enameling at the Philco Corporation's Connersville, Indiana, plant.

The METALWASH Continuous Spray Pickling Machine has become an indispensable production method in the preparation of steel for porcelain enameling, in the removal of mill scale prior to plating, polishing, phosphatizing, and in the removal of annealing scale following the heat treatment of deep drawn and stamped parts.

METALWASH Spray Pickling represents a basic improvement in the *nature of the pickling process*:

The removal of oxide scale is the result of a mechanical as well as a chemical action, and it is the force of the acid from high-pressure sprays, blasting the conveyorized work from all angles, that produces the thorough, fast, uniform results obtainable only in a METALWASH Spray Pickling Machine.

METALWASH PARTS WASHERS, designed for alkaline-, neutral emulsion-, or solvent-type cleaners,

METALWASH VAPOR DEGREASERS provide new speed, economy, durability.

METALWASH PHOSPHATIZING MA-CHINES provide ideal surface for lasting paint finishes.



METALWASH MACHINERY CORPORATION

920 North Avenue, Elizabeth 4, N. J. In Canada, Canefco, Ltd., Toronto, Ontario



"Now, to put it together for keeps... here's the only thing to use...BRASS"

YES, father knows best — or at least he knows his fastenings and what makes them hold fast, and last. Nothing else but good, solid Brass that you can always bank on . . . Bristol Brass, for example.

And more and more manufacturers of screws, rivets, pins and other cold formed products are learning of the savings to be had from the remarkable versatility of wire developed by Bristol engineers. Nothing else permits the making of more types of products and heads (round, flat, etc.) from the same stock. Once they try it, manufacturers reorder from Bristol to take advantage of the inventory simplification offered by Bristol Brass wire.

Brass wire has always been a favorite of manufac-

turers because it is so easy on tools and machines. And many of them specify *Bristol* Brass wire because they find it consistently uniform in gauge, temper and grain-size — and because Bristol's delivery promises are kept. See for yourself. Send us a trial specification now.

The Bristol Brass Corporation has been making Brass strip, rod and wire here in Bristol, Connecticut since 1850, and has offices and warehouses in Albany, Boston, Buffalo, Chicago, Cleveland, Detroit, Milwaukee, New York, Philadelphia, Providence, Rochester, Syracuse. The Bristol Brass Corporation of California, 1217 East 6th St., Los Angeles 21. The Bristol Brass Corporation of Ohio, 1607 Broadway, Dayton.

"Bristol-Fashion" means Brass at its Best



for a complete line of steels

SPECIALS: Jalloy (High Strength—Abrasion Resistance) Jalten (High Strength—Good Formability—Abrasion Resistance) Junior Beams • Junior Channels • Jaltread Floor Plate • Tool Steels • Stainless Steels.

STANDARD PRODUCTS: Hot Rolled and Cold Finished Bars and Shapes. Structural Shapes • Carbon and Hi-Tensile Plates • Hot and Cold Rolled Strip and Sheets • Wire Products • "Precisionbilt" Wire Rope.

for service that solves your problems

TECHNICAL SERVICE: Experienced J&L Metallurgists to help you with analyses and recommendations.

FABRICATION SERVICE: Shearing, forming, torch cutting, blanking, to your specifications.



Jones & Laughlin

STEEL CORPORATION - Warehouse Division

RON AGE October 14, 1954

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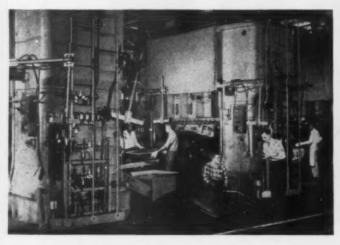
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1. Sheet Steel is drawn to the contour of an inner door panel in the 700-ton-ram double-action press, then progresses through . . .



2. Four More 600-ton presses that restrike, trim, pierce and give the panel final form.



3. Pressed and Welded to the outer door, the door assembly is completed so that it will fit neatly and hinge properly.



4. To Produce hundreds of smooth contoured doors per hour takes perfet

This Steel Meets Automor

Automation is forcing steel to its severest test. Modern die engineering and streamlined press operations demand the best in sheet steel for high speed production. For example, take the giant 700-ton-ram double-action press at the entry end of an automobile door panel press line.

As fast as one door panel is drawn under tremendous pressure to the contour of the punch die, another panel is in position. From this first operation, the door panel passes through a series of four more 600-ton presses (photo No. 2) that restrike, trim, pierce and



mwork between men, machines and rolled steel sheets. Read why . . .

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At the delivery end of the press lines photo No. 3), completed door panels redelivered by the hundreds per hour reach door gracefully styled and rong. Through all of these operations, the steel must exactly meet pecifications that permit it to be trawn and shaped. It must be uniform hroughout each sheet, and from sheet o sheet.

Meeting The Test—Steel, to meet uch rigid requirements, is not easy to make. That's why top auto producers buy steel from quality steel makers, such as Pittsburgh Steel Company, who have the know-how and modern equipment to produce inherent quality in cold-rolled sheet to meet automation's challenge.

This challenge is one of uniformity. To become a smoothly contoured automobile door with beautiful surface finish the steel cannot vary more than a few thousandths of an inch in thickness. Its chemical composition must be held to a few ten-thousandths of an ounce. The grain structure is controlled so that even a microscopic change would be evident.

The steel that goes onto production lines from Pittsburgh Steel, then, has been custom-built to do the job it is designed to do. It has proper internal qualities: exact chemical analysis, cleanliness, and fine grain size. It has the necessary external qualities: dimensional uniformity and surface cleanliness.

On high speed press operations, this means longer trouble-free runs and better quality in the end product. It minimizes the possibility of laminations, grainy surface, seams, buckles, wrinkles and tears, stretcher strains, and skin breaks—increases yield, speeds production and prolongs die life.

The inherent quality of the steel also assures a perfect surface when the door is disced and polished with fine abrasive. It requires less finishing, provides a clean, sound base for painting.

◆ How It Is Made—The story behind this quality sheet steel goes back to the materials that go into Pittsburgh Steel's modernized blast furnaces—the enlarged open-hearth furnaces—the new blooming mill—the new 66" hot rolled sheet mill. Here, reverse rolling techniques, special high pressure water sprays, and electronic control of rolling temperatures impart a fine grain structure and smooth surface finish so that the steel can be properly cold-rolled.

The cold-rolling is done on Pittsburgh Steel's new 66" four-high, fourstand mill. It employs the most mod-



5. Finished Quality of the graceful style lines is assured as the surface is sanded and polished before painting.

ern electrical system ever installed on a cold mill to provide faster speed control of the rolls, tension control across the surface of the sheet and scientifically accurate gage indication—all designed to achieve the utmost in uniformity.

• Producing Quality—Fabricating operations everywhere in industry are becoming more and more dependent on quality in steel as the trend toward automation gains more momentum. Because automation not only means faster and lower cost production, but also better products for competitive markets, it is beginning to single out the producers of quality steel.

Pittsburgh Steel offers you the kind of cold-rolled sheet you need to meet your production line requirements, when and where you want it. Your orders get prompt personal attention from the time they are entered on the books until your product is completed.

If you are not now among those taking advantage of the savings this offers, why not call the nearest district sales office today? Write for your color brochure "The New Pittsburgh Steel Company."

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DISTRICT SALES OFFICES: Atlanta • Chicago • Cleveland Columbus • Dallas • Dayton • Detroit • Houston • Los Angeles New York • Philadelphia • Pittsburgh • San Francisco • Tulsa Warren, Ohio. PLANTS: Monessen, Pa. • Allenport, Pa. • Akron Los Angeles • Unionville, Conn. • Warren, Ohio • Worcester, Mass.

PRINCIPAL PRODUCTS: Hot and Cold Rolled Strip and Sheets * Strip
Specialties * Seamless Tubular Products * Wire and Wire
Products * Chain-Link Fence * Cargotoiners * Steeltex



SHELBY SEAMLESS TUBING helps Caterpillar build machines

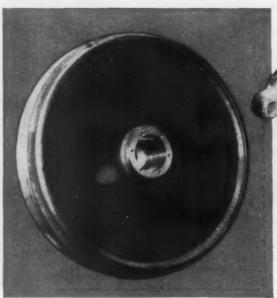
This year Caterpillar Tractor Co. celebrates 50 years of crawler tractor manufacture—half a century of progressive development and outstanding success. During this period, Caterpillar-built products have become world-famous for their unfailing dependability under all conditions of service.

We are proud of the fact that throughout the years Caterpillar has confidently used Shelby Seamless Tubing for many of the vital parts that keep hard-working Caterpillar-built machines on the job. Super-rugged equipment calls for super-strong materials. That's why you'll find USS Shelby Seamless Mechanical Tubing being used for so many heavy-duty applications. Its great strength, complete uniformity, and extreme dimensional accuracy make Shelby Seamless the ideal mechanical tubing for the fabrication of machine parts subject to bruising performance and long wear.

Available in a wide range of diameters, wall thicknesses, various shapes and steel analyses, Shelby Seamless Tubing is produced to exacting standards by the world's largest manufacturer of tubular steel products. Contact our engineers for recommendations. They will be happy to help you apply Shelby Seamless Mechanical Tubing to your specifications.

NATIONAL TUBE DIVISION
UNITED STATES STEEL CORPORATION, PITTSBURGH, PA.
(Tubing Speciation)
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO. PACIFIC COAST DISTRIBUTORS

UNITED STATES STEEL EXPORT COMPANY, NEW YORK





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The Iron Age Newsfront

Cars: Announcement Procedure Changed

Striking revisions in time tested automotive announcements procedure will be noted in some new model introductions. In several cases, new model pictures and data will be made public well before cars will be on display in dealer showrooms. This would have been considered heresy a few years ago; still is in some companies.

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Steel Labor, Management Team Up

Steel labor is sold on public relations value of participation in community and civic affairs. Also, union leaders feel they have made substantial contributions to community progress and prosperity, are entitled to public recognition. Likely result will be more union-management cooperation in working out community problems. This cooperation is already taken for granted in majority of steel plant towns.

Spray On Flexible Ceramic Coatings

Flexible "solution ceramic" coatings which can be sprayed on almost any solid surface at only a few hundred degrees temperature have been developed. Unlike conventional porcelain enamel coating, the solution ceramic coatings are not brittle. The coatings are reported to resist chemical attack at high temperatures.

Use Induction Heating to Bond Copper Wire

High-frequency induction heating is showing good results in the bonding of copper conductor wire. The operation is being performed during the cutting and stripping operation where previously the results were erratic and nonuniform. The tinning operation must be accomplished within a narrow temperature range in order to have all strands properly bonded.

Mill Training Program Pays Dividends

A pre-startup training program paid dividends for one steel producer when its new 56-in. tandem cold mill was brought into production recently. Mill crew was trained so thoroughly beforehand that mill was under complete control from the start. Present crew will be able to train other operators.

Some Strong Arguments Stolen

Ford may be the guinea pig when the UAW-CIO launches its guaranteed annual wage drive next spring. Although Reuther & Co. has been vocal in stating goals for new auto contracts, economic setbacks of some segments of the auto industry have robbed the union of some of its strongest arguments.

Coating Reduces Transformer Hum

Transformer hum is a growing problem with public utilities. Now, a special coating on grain oriented silicon strip steel sharply reduces noise level. Before coating was available one utility recently spent \$45,000 to build a wall around a substation to soothe irritated neighbors. Another approach to this problem was use of loudspeakers emitting sound in same frequency range as transformer to cancel out hum.

Sulfur Treatment Extends Bearing Life

Longer life for steel bearings, in some cases up to six times the life of similar bronze bearings, is reported through use of a sulfur cementation process. The process, used in France, has worked especially well with alloyed castings and stainless steel, French metallurgists report.

Plastic Refractories Lower Maintenance

Use of plastic refractories for steel mill heating applications is showing excellent results in refractory life for some installations. One Midwest mill is reported to have obtained five years life out of rammed plastic refractories with negligible maintenance costs. Material also is being used successfully in heat treating furnaces.

a CMP cost cutting report ON THIS SPRING STEEL PART

CMP AT THE METAL SHOW Booth No. 141 **International Amphitheater** Chicago-Nov. 1-5

CMP COLD ROLLED TEMPERED SPRING STEEL made it easier at less cost 1

BEFORE

This manufacturer of spring steel parts purchased annealed spring steel and processed it for desired temper preceding fabrication. Frequently problems of non-uniformity slowed down production. Often-times parts did not meet specifications--tolerances were too variable -- fatigue tests would not meet requirements. It all added up to many costly rejects.

AFTER

These problems were given to a CMP representative for study and, after several discussions with CMP technical representatives, a new manufacturing procedure was established. Specific specifications were developed by CMP for each spring steel application and, after approval by the Customer, CMP then produced and processed tempered spring steel to each such specific specification. The manufacturer's previous problems of fabrication and tempering-in-process were eliminated and the manufacturer showed an improved cost on each such spring steel job, proving once again that it is worthwhile to utilize the CMP technical spring steel experience which is available to you at any time.

CMP . . .

WHERE YOU CAN GET SPECIFIC SPECS. SPECIFIC JOBS

LOW CARBON

HIGH CARBON

Annealed or Tempered

STAINLESS

ALLOY

ELECTRO ZINC

COATED

the Cold Metal Products co.

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LOW CARBON, HIGH CARBON (Annealed or Tempered), STAINLESS AND ALLOY GRADES, ELECTRO ZINC COATED ARE AVAILABLE FROM: THE COLD METAL PRODUCTS CO. OF CALIFORNIA
2131 South Garfield Avenue, Los Angeles
Phone: RAymond 3-4581

THE KENILWORTH STEEL CO., 750 Boulevard, Kenilworth, New Jersey Phones: N. Y., COrtlandt 7-2427; N. J., UNionville 2-6900

PRECISION STEEL WAREHOUSE, INC.

Phone : COlumbus 1-2700



MAGNESIUM: Industry At Crossroads

Contract for operating Velasco plant runs out soon . . . Dow wants to buy it but Justice Dept. says "No" . . . Prospects dim for ending unwilling Dow monopoly . . . Freeport capacity not enough—By R. L. Hatschek.

• SHUTDOWN of the nation's largest magnesium plant now appears to hinge solely on whether Defense Dept. will issue an edict declaring continued operation essential to national security. If not, the nation's biggest plant may be shut down next month.

Cutting off production at the government-owned plant at Velas-co, Tex., would trim total output to a level below current consumption, jeopardizing defense production, slashing civilian availability and striking a hard blow at future growth of civilian markets for the lightweight metal.

Sole Private Plant

Seven magnesium plants exist, six owned by the government. Others have been dismantled or converted to production of titanium and beryllium. At present only three are producing magnesium, four are mothballed. Operating plants are Velasco, Freeport, Tex., and Canaan. Conn.

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Freeport, with an annual capacity of about 30,000 tons, is owned by Dow Chemical Co. and is the only privately-owned producer.

Atomic Energy Commission is operating the small, more expensive Canaan plant. Capacity is about 5000 tons but current operations are at about the 40 pct level. Production is by a special process which yields high-purity metal for the special needs of AEC.

Velasco, with a capacity of 45,-000 tons a year, is currently being operated by Dow under lease from the government—but the lease expires on Oct. 31 and no arrangements have yet been made for operation beyond that date. General Services Administration has had the Velasco plant up on the auction block for some time (See The Iron Age, Feb. 25, p. 210). At first Dow was not sure it wanted to buy the plant. Nobody else wanted it either so Dow finally made an offer. But Dow's unwilling monopoly in primary magnesium proved a stopper.

Hard to Sell

Dow actually wants some competition—but nobody else seems to want to enter the field. Magnesium fabricators and foundries, literally the entire industry would like another source of supply. But still nobody has stepped forward to fill the gap.

There are some valid reasons why nobody else wants to buy

either Velasco or the plant at Painesville, O., which is the only other economic producer. The former is situated practically on Dow land and is partially dependent on the Dow Freeport plant. The latter uses Michigan brine as a raw material—and the obvious supplier would again be Dow. Other plants, as pointed out before, are high-cost.

Neither is anybody in a hurry to build a new plant from scratch. Construction costs today would be much higher than the original price tags on existing plants. It would be just too big a risk to gamble the needed capital in an industry with so many unknowns.

Justice Bans Sale

Justice Dept. disapproved the Dow proposal to buy Velasco, contending that sale would conflict with antitrust laws. While the official disapproval does not preclude sale, Dow understandably would be reluctant to buy if a legal entanglement could ensue.

GSA is concerned about the Justice Dept. turndown and doesn't yet know what action to take. Offer from Dow looked good, for the sale would have meant a return to the government of \$13.5 million over a 10-year period. Of this total, \$9 million would have been the basic cash payment, with the remainder coming from a percentage on each pound produced for 10 years. With the plant valued at something over \$16 million, this offer was attractive to E. F. Mansure, the GSA boss.

That left GSA with three alternatives on which it could take action:

1. Dispose of the plant to some

U.S. Magnesium Output

| (Primary | only, tons) |
|----------------|-------------|
| 1940 | 6,261 |
| 1941 | 16,294 |
| 1942 | 48,963 |
| 1943 | 184,584 |
| 1944 | 157,100 |
| 1945 | 32,792 |
| 1946 | 5,317 |
| 1947 | 12,344 |
| 1948 | 10,003 |
| 1949 | 11,598 |
| 1950 | 15,726 |
| 1951 | 40,914 |
| 1952 | 105,833 |
| 1953 | 93,075 |
| 1954* | 49,520 |
| * First 8 Mont | hs |

Merger:

Passing of American Motors head confuses auto picture

◆ SUDDEN DEATH of George W. Mason, president and chairman of American Motors, stirred the unsettled situation among the small auto manufacturers into further turbulence.

It was generally believed in automotive circles that the genial but hard-driving head of American held the key to any additional consolidation of the former independents. Now, all speculation will have to be based on an entirely new set of values and entirely new personnel.

It was Mr. Mason, president of Nash-Kelvinator since 1936, who engineered the merger of Nash and Hudson. This move literally forced Packard and Studebaker into each other's arms. Action on the merger front between American and Studebaker-Packard has been of behind-the-scenes quality, but the final move toward making a Big Four

seemed inevitable. It now seems more so.

There are two principal reasons why this is the case. First, without Mr. Mason's hard driving leadership, it is more likely that American directors and stockholders will be willing to cast their lot with the Hoffman-Nance-Vance management of Studebaker - Packard. Second, there is no longer the possibility of a clash of personalities and ambitions that lurked behind future negotiations between the companies.

Both of these reasons are based on the same fact: Mr. Mason completely dominated Nash-Kelvinator and later American. His probable successor, unless the board should go outside the corporation, is George Romney, a comparatively young, able and aggressive executive vice-president. However, Mr. Romney's background is not in manufacturing, but in trade associations and his industrial experience has been gained largely as Mr. Mason's assistant.

This doesn't mean that American is going to be an easier mark in future negotiations, however. In spite of the greater fanfare of the recent Studebaker-Packard combinations some of the best minds in



GEORGE MASON, late president of American Motors.

the auto industry believed that American was in the stronger position.

Fact that American had its profitable Kelvinator appliance line gave it a broader base of operations.

On the other side of the picture, Mr. Mason's successor will have his hands full in putting American's house in order with the complex reorganization that followed the Nash-Hudson merger. This might delay the start of serious negotiations.

SPECIAL REPORT

other buyer. This is highly unlikely for the above reasons and because the only firm offer made thus far is by Dow.

2. Lease the plant to Dow for 3 more years. Dow has the option to renew but hasn't said it wants to. There is no assured market in the government stockpile as with other metals, the stockpile is about full and the firm may not consider it economical to run Velasco at a reduced rate.

3. Put the plant in a layaway status. This would cost the U. S. \$3.5 million initially plus another \$1 million annually to protect the facility. Despite this protection, GSA believes the plant would become worthless by 1967.

Mr. Mansure is asking Defense Secretary Wilson, Defense Mobilizer Fleming, and other top people for a high policy meeting to determine how to keep the plant going, particularly under private ownership. He thinks this is a fine chance for the administration to get the government out of one form of business and at the same time to fatten U. S. Treasury income. There are no results yet on the Mansure plea.

Yet if Velasco is deactivated, commercial production will drop to about 2500 tons monthly as compared to the average of better than 6000 tons during the first 8 months of 1954. And this output would be less than current consumption which is running at an estimated 3000 to 3500 tons monthly. Of this, perhaps 60 to 70 pct is military, the rest civilian.

Under these circumstances, the high-level decision must be for continued operation of the plant. Defense Secretary Wilson can—and is expected to—declare Velasco's production essential to national security. His authorization would be Public Law 883. If he

takes this step, the government will have to keep the plant running, with Dow as the only logical company to operate the plant.

But in order to make it economically feasible there must be a market for all of Velasco's production. Magnesium business is currently reported holding at a satisfactory level—at worst 20 pct below last year's. But prospects for a rise look encouraging.

Since consumption is somewhere between capacity of Freeport and the two plants together, GSA will almost certainly have to provide an assured market for unsold production in the strategic stockpile. No pressure exists to build up the magnesium stockpile at present. While the tonnage held in stockpile has never been divulged, it's easy to calculate that it must contain something on the order of 100,000 tons. That's just about 1 year's full-tilt production.

STEEL: Pickup in Employment Starts

Re-employment rate for steel industry is not sensational but is moving up . . . Improvement to continue into first quarter '55 . . . Steel output showing strength . . . Spot report on companies—By J. B. Delaney.

STEEL MILL production and employment are beginning to reflect the pickup in finished steel demand. Producers are slowly adjusting melt and rolling schedules in line with increased requirements. More blast furnaces are being brought into play. Payrolls are fattening.

Upturn in employment is far from sensational, probably will lag behind the rise in ingot production for several reasons:

1. Union contracts require that ayoffs be made only after the average workweek drops below a certain evel; this retards layoffs when business turns down, slows rehires when business improves;

2. Some firms minimized layoffs by shifting work forces or putting them to work on maintenance and construction jobs resulting from expansion and modernization, and

3. During the peak years some firms did not make any extensive additions to payroll, choosing instead to maintain "standard" work forces and pay heavy overtime pre-

Union Hopeful Too

Chances are though that employment will continue to improve over balance of the year and in first quarer of 1955. Top company officials contacted by THE IRON AGE are ptimistic. Even union officials are beginning to feel the upturn is more than just a flash in the pan.

There is room for improvement in the employment picture. Beween August 1953 and August 1954 average number of production and salaried workers in 110 ompanies representing 97 pct of he industry dropped from 662,000 0 572,000; average workweek delined from 38.4 to 35.8 in the same eriod.

Copperweld Steel Co. - Recalled

125 workers and added two working turns at Warren, O.; A fourth turn will be added to melt shop, increasing work week from 5 to 7 days: bar mill also will add a turn and other operations will be increased.

Sharon Steel Corp.—Recalled 375 workers during September and looks for additional rehires during fourth quarter. October employment is 8942 compared with low of 8567 in

Allegheny Ludlum Steel Corp. -Production workers employed now number around 12,000 compared with 11,400 during May low point. Layoffs were minimized due to heavy maintenance and construction programs. E. J. Hanley, president, reports a pickup in both stainless and electrical steel demand.

Armco Steel Corp.—Employment only slightly below all-time high of August 1953, although most overtime has been eliminated and some work periods have been spread to cover regular work force. Armco did not load up payroll during recent peak years but stuck to standard work force on overtime basis. Employment has been on upgrade since low point in March. Low point in production was reached in mid-July. Present operating rate: 93 pct. W.

W. Sebald, president, believes steel outlook for fourth quarter will be an improving one, expects industry rate to rise to about 75 pct.

Add to Optimism

Recent developments among scattered companies throughout the country:

U. S. Steel Corp.—Addition of one blast furnace, one open-hearth at Homestead Works; rehiring of 70 men on jobs not directly related to these additions; addition of one blast furnace, one openhearth at Youngstown Mills.

Pittsburgh Steel Co.-Plans to operate at about 100 pct of capacity this week, hit record-breaking 104.2 pct last Thursday; lighted second of three blast furnaces Oct. 1, has cold sheet mill on three-turn basis.

Wheeling Steel Corp.-Nine of 11 openhearth furnaces operating; Bessemer converter department at 100 pct; at Yorkville tinplate works, tandem mill operation increased from 25 to 30 turns; cut nail output at LaBelle works increased from 80 to 85 pct rate; additional terne pot put into production at Beech Bottom long terne department.

Kaiser Steel Corp. - September operations were at 92 pct of capacity; present production workers total is 5671 compared with 5384 low point last March.

Laclede Steel Co.-Operating at peak employment of 2795 compared with low of 2282 last February. Previous high of 2762 was reached in July 1953. Average workweek in August was 39.8 hours. Pickup for this company began in June.

Inland Steel Co. - Operations were at relatively high level through the summer; layoffs were minimized by reduction of overtime and scheduling of vacations; company expects to have recalled entire work force by near future.



October 14, 1954

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PRICES: They Are Tough To Cut

How one firm's purchasing department appealed to 1200 suppliers for price reductions . . . Replies show labor, material costs; low, uneconomic production rates hold prices up—By J. R. Whipple.

♦ THERE ARE only a lucky few metalworking firms today that haven't found themselves caught in an economic squeeze play between cost-of-goods boosted high during Korean War era and 1954's mild recession-buyer's market.

No exception to the trend is Yale & Towne Manufacturing Co.'s Materials Handling Div. at Philadelphia.

One of the largest U.S. producers of lift trucks, hand and power hoists, Materials Handling Div. consumes \$24 million worth of raw and semi-finished materials, finished components annually.

In an effort to reduce costs on the thousands of parts embodied in Yale products, and keep prices in line with the keenly competitive materials handling equipment market, Thomas W. Curtin, director of purchases at Philadelphia, took an unique course of action.

Make Direct Appeal

In a courteous, well-thought-out letter recently sent to sales managers at 1200 of Materials Handling Div.'s suppliers, Mr. Curtin made a direct appeal for a thoroughgoing review of vendor's costs, asked that any resultant savings be passed on to Yale &

(Replies from his letter gave Mr. Curtin ample evidence that Yale & Towne's problem was shared with most of its suppliers, a cross section of American indus-

Mr. Curtin's letter went on to show how the economics of successful cost-cutting would result in a profitable chain reaction, phrased the case as follows: "Such reductions in cost by you . . . should permit us to establish a selling price of our . . . equipment which would attract increased acceptance which, in turn, would place us in a position to increase quantities of materials procured from you."

Reasons For Reductions

As factors permitting possible price cuts Mr. Curtin cited the following:

1. Industry's general return to 40-hour workweek and subsequent elimination of premium pay. 2. Greater availability of materials at non-premium prices. 3. Removal of excess profits tax. 4. Greater experience in producing for Yale & Towne resulting in efficiency, cost reduction.

Replies to Yale & Towne's appeal fell in following pattern:

How Suppliers Answered Yale & Towne's Appeal for Price Reduction

BASE: 118 LETTERS

GROUP A

Have Lowered or Might Lower Prices

| | Number | Pct. |
|--|--------|------|
| Reductions were made in the reply or were said to be planned in very near future | . 6 | 5.1 |
| 2. Replies that cited recent reductions | 18 | 15.3 |
| Replies suggested possible economies for Y&T through increased quantities or shipping methods | | 13.6 |
| Replies suggested economies possible through engineering studies on component products | | 1.7 |
| and the second of the second s | - | 1./ |

Cannot Possibly Cut Prices

| 5. Replies stated that in light of current cost reviews no | | |
|--|-----|------|
| culs could be made | 26 | 22.0 |
| 6. Replies cited their prices as industry's lowest or claimed | | |
| a price-fixed commodity situation | 4 | 3.4 |
| 7. Replies cited increases in cost of raw materials and/or | | |
| power | - 6 | 5.1 |
| 8. Replies cited increased labor costs | 12 | 10.2 |
| Replies did not cite specific cost increases, but spoke of being able to hold prices in line only with great | | \ |
| difficulty | 12 | 10.2 |
| 10. Replies claimed increases "all along the line" | 2 | 1.7 |
| | | |



GROUP C Will Raise Prices

| 11. Replies informed Y&T of price increases effective immediately | 2 | 2.5 |
|---|---|-----|
| 12. Replies warned of necessary increases in the near fu- | 3 | 4.3 |
| lure | 2 | 1.7 |
| Group Total | 5 | 4.2 |



Miscellaneous Replies

13. Replies were from brokers or manufacturers' representatives who claimed no influence over the prices of materials supplied to Y&T

| | 9 | 7.6 |
|-------------|-----|-------|
| Group Total | 9 | 7.6 |
| Grand Total | 110 | 100.0 |

Just 5.1 pct of the respondents offered Yale & Towne immediate reductions on one or more items regardless of minimum shipments. An additional 15.3 pct called attention to reductions made within last 6 months to a year.

Possible economies available to Yale & Towne through greater quantity purchases, less expensive shipping, more economical scheduling of lead time were suggested by 13.6 pct of the answers received by Mr. Curtin's office.

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Engineering studies by vendor and Y & T were suggested in two letters as a possible means of reducing the cost of several component parts.

Over half of the total replies received, 52.5 pct gave no hope of any price reductions to Y & T in the "immediate future." All of these were courteous in tone, cooperative in spirit but unable to offer any dollars-and-cents relief.

Increased labor cost was the largest single reason, 10.2 pct, cited for vendor's inability to show reductions on invoices to Materials Handling Div. Trailing this group with 5.1 pct were replies telling of increased raw material or power costs.

An unhappy minority of those replying, 4.2 pct, had the painful duty of responding to Y & T's appeal with announcement of immediate price increases.

A final 7.7 pct of the replies came from distributors' and manufacturers' representatives who explained that they were unable to change prices of firms they represented.

Before launching Yale's pricecutting appeal, Mr. Curtin took pains to make sure that Materials Handling Div.'s own house was in order.

Little more streamlining could be done however, as Yale & Towne's Philadelphia plant is something of a model of manufacturing efficiency. The utmost in labor-saving handling aids, cost-cutting layouts and product flow through all phases of assembly was engineered into the plant at its opening in 1948.

One interesting letter received

in reply to Mr. Curtin's appeal highlights the difficulties under which manufacturers are laboring, spells out some specific points: "smaller quantities mean more set-up and tear-down . . . higher costs; smaller purchases (by us) result in higher unit prices; reduced backlog means that operators are stretching jobs . . . and unit costs are going up; faster deliveries promised . . . means shorter lead time, results in higher costs."

One of the most valuable effects of the Yale & Towne appeal for price reductions, Mr. Curtin feels, was as a deterrent to panicky price increases that might have followed steel wage increase last July. He feels that his letter was a sobering message to any manufacturers motivated by the mass psychology that is expressed in terms like these; "Jones Co. raised their prices, so we'd better hike ours, too, just to make sure we don't get caught off base.

THE YALE & TOWNE MANUFACTURING COMPANY

YALE MATERIALS HANDLING DIVISION

PHILADELPHIA 15 . PA.. USA.

Gentlemen:

For the purpose of improving our position in a highly competitive market, we are constantly reviewing our manufacturing costs, effecting economies wherever possible. Our results in perfecting manufacturing practices have been most favorable. In addition, having reviewed transportation costs associated with material furnished by our vendors, further economies have been realized. These savings have been most helpful, but still do not permit the reduction of our selling prices to the point of satisfaction to ourselves or our customers. To accomplish these results we must request the aid of our suppliers.

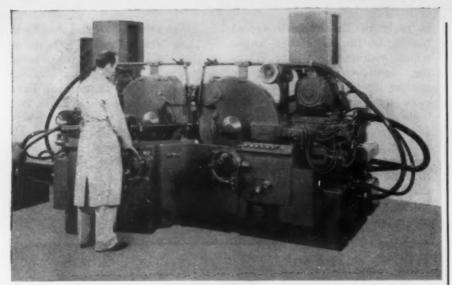
Generally, in our opinion, the return to a standard forty hour work week has eliminated premium pay, materials are now more readily available without premium, excess profits taxes have been removed, and you have undoubtedly gained experience with our preducts, thus producing greater efficiency in your operations. This we believe should permit a substantial decrease in the prices of items which you are regularly furnishing for our interests. Such reductions in cost by you, plus savings which have been obtained through our additional manufacturing facilities should permit us to establish a selling price of our materials handling equipment which would attract increased acceptance which, in turn, would place us in a position to increase quantities of materials procured from you. We feel larger commitments on you would be appreciated and to accommodate we trust that you will give this program very serious consideration, reviewing the prices of items supplied us at the earliest possible date.



THOMAS W. CURTIN, author of thought-provoking price reduction appeal, is director of purchases at Y & T's Materials Handling Div. An engineering graduate of Pratt Institute, Mr. Curtin has had considerable production management experience, is sympathetic to problems of cost control.

October 14, 1954

ION AGE



Automotive Reor Axles are ground almost automatically with Federal Machine Controls on the job. The operator loads axle, snaps on gage, pushes start button. Wheels advance automatically...one grinding diameter of bearing and oil seal; the other grinds diameter and flange for brake drum and wheel hub. Federal gages control rate of wheel infeed and cause wheels to back up when work reaches size.

Your Plant Can Afford Automatic Machine Control

New machines are appearing on the market which put production on a wholly automatic basis. There's no doubt about their ability to produce dimensional quality at a better rate than ever before. Such advantages apply not only to machine tools but to any other type of equipment where dimensional accuracy is necessary. In the case of machine tools, considerable savings result in making workpieces correctly the first time. The workpiece is finished directly to required size without interruptions for measurement or other delays. Subsequent check-up inspection is reduced to a minimum.

This same principle applies to machines other than machine tools where the dimensional accuracy of the product is important. Much surplus material can be needlessly given away in

an oversize product and much scrap wasted by undersize production.

If your budget does not permit the purchase of new automatic machines, you may be able to secure many of their advantages by applying Federal's standardized automatic control units to your present machines. For example, in the installations shown on this page, see how Federal electrical and electronic gages control machines for large mass-producers. They feed back dimensional information to control feeds and stop operations automatically.

Federal engineers may save time and money for you, too. Automatic machine control is old stuff to them. They've been in it for years. Why not ask for recommendations that will make machine control pay off big in your plant?

FEDERAL PRODUCTS CORPORATION
41310 Eddy Street, Providence 1, R. I.



FOR ANYTHING IN MODERN GAGES ...

Dial Indicating, Air, Electric, or electronic — for inspecting, measuring, sorting, or automatically controlling dimensions on machines.

Atom:

U. S. has lead in international atomic power race.

What was yesterday an atomic arms race, may become tomorrow a race for atomic power and the application of atoms to industry. Spotlighting the U. S. lead was last week's Chicago meeting of the Professional Group on Nuclear Science, the group's first.

With representatives from Norway, Sweden, the United Kingdom, and Canada present and speaking pretty freely, it developed that the U. S. has a healthy lead at least on this side of the Iron Curtain.

Britain, one of the first overseas nations to swing heavily into atomic research at the end of World War II, has a total of six reactors, representing probably five different types. Canada has three, makes no bones about it that she's out to achieve atomic-produced electric power in commercial quantities in the 1960's.

AEC Plans More

Sweden brought in, on Russia's doorstep, her first nuclear reactor for experimental use in July of this year and will have a second larger and more powerful unit in 1958 with a 10 megawatt output.

Meeting followed hard on the heels of the Armour Institute announcement that Chicago would have the first nuclear reactor devoted exclusively to industrial research, to be completed late next year. The AEC has brought in a total of 40 reactors over the postwar period, though some of these have been retired. The Commission's 5-year proposals call for another five large reactors and probably a number of smaller units for special research.

The liberalized U. S. program will put reactors into the hands of institutions and make leased government fuel available for operation of the reactors. As a result, North Carolina University has one reactor in operation, Armour will have another next year, and at least four other privately owned reactors are either approaching the building stages or are planned.

ELECTRONICS: Charts Good Sales Year

Midyear sales of electronic equipment 17 pct ahead of '53 . . . Producers plan for further growth . . . Transistors beat germanium limits . . . Purchasing agents raising order volume—By K. W. Bennett

♦ ELECTRONICS equipment producers, meeting at Chicago last week, were talking of a good year. At midyear electronic equipment sales were outstripping the year before by 17 pct. A group of representative parts would total roughly \$26,600,000 in first quarter 1953; \$29,500,000 in fourth quarter 1953; and were moving past \$31,600,000 at the close of first quarter this year. The pace doesn't appear to be slowing.

An industry that was rated at \$3 billion in first half 1953 employing 300,000 at that time, appears scheduled for further growth. Visitors at the show were pointing out that General Electric, for instance, will achieve real mass production of transistors this year. For the first time germanium capacity will no longer set a top limit. With that development, there will probably come a price for the peanut-sized (or smaller) transistor that will at last make it competitive with the vacuum tube.

Buying Was Cautious

Similarly, Raytheon, Chicago manufacturer who was among the first to catch the consumer switch to steel TV cabinets this year, was expected to have transistors in radio and power frequencies in mass production by the end of the

Despite the statistics, purchasing agents in the electronics field have been buying from their own suppliers with some caution, were speaking of 30-day raw materials inventories and permanently reduced plate inventories of raw materials.

From the metalworking industries electronics producers purchase a considerable range of products: stampings, fasteners, rod and sheet steel (the latter in cold-rolled, hot-rolled, and some terneplate as well as silicon sheet), some castings, stamping and punch presses, metal-forming dies, soldering equipment, screw machines, copper, aluminum, spot welding equipment, and even steel springs.

TV Sales Up

Purchasing agents, like the rest of industry, spoke of reducing inventory during first half 1954, despite the industry's total selling record. And they pointed out that despite talk of permanently reduced inventories, they are pushing up their purchases of raw materials again.

Bolstering these brighter predictions were sales of television sets, still an extremely important part of the electronics picture despite the recent growths of instrument sales, hi-fidelity sound equipment sales and others. Though television set sales in the first half of 1954 were a record 2,805,760 sets as compared with 2,775,900 sets sold at retail in the first half of 1953, set production by manufacturers in the same period was off by almost one quar-

And electronics are still finding new markets. Attracting most attention from the metals industries at this year's electronics conference was a paper by D. L. Waidelich, researcher with the University of Missouri, reporting the use of pulsed eddy currents, in the manner of an echo sounder, to determine the depth of nonmagnetic coatings on metal.

Using a home-cooked piece of equipment built around an oscillograph (total cost \$2000; space occupied, about 5 cu ft), the unit was designed to measure coatings too thin to be handled by sonar. Testing coatings of copper on stainless, stainless on copper, aluminum on stainless, aluminum on copper, and others, Dr. Waidelich tested coating thicknesses in the 0.005, 0.015 and 0.025 range thickness but indicates his equipment will handle coatings considerably thinner.

Rains:

Swamp Chicago industry . . . Firms asked to cut power use

What began as an unpredicted Saturday afternoon shower at Chicago turned off last Monday morning after topping the city's all-time record downpour, some 6.12 in. at 12:30 a. m. Monday. It was Chicago's worst rainstorm since 1885.

While city health officials warned residents that the city water supply wasn't contaminated but that well water must be boiled, local industries were having troubles of their own. Plant managers of at least 250 plants consuming 500 kw or more of power were approached by Commonwealth Edison with the request that they cut power consumption by 50 pct beginning Monday.

Major plants affected in the Chicago area were: Sunbeam Crane Co., South Works of U. S. Steel, Ingersoll Steel, Electro Motive, Ecco Products, Finkl & Sons, Ford Motor Aircraft Engine Div., Reynolds Metals, American Steel & Wire, Republic, International Harvester, Wisconsin Steel, National Malleable, Northwestern Steel & Wire, Hotpoint, Acme Steel, and smaller firms.

Commonwealth Edison hoped to restore more service by Friday but didn't expect full repairs to be complete for at least 2 weeks.

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JOINT OWNERS: Can Be A Bad Mistake

Property owned jointly cant be controlled by will . . . Passes outright to other joint owner . . . Advantages are overrated . . . Little practical debt protection . . . Federal tax rate may be higher.

◆ GEORGE PIKE was sure he had everything in order. He had called in his lawyer and his bank's trust officer to help plan his estate. He listed his assets, carefully appraising their worth. He paid particular attention to his business, which he had built from practically nothing to a corporation worth \$500,000. This was to pass to his sons on his wife's death.

He had sufficient liquid assets and life insurance, properly arranged to meet the tax bill at his death. His will was well drawn, emphasizing the treatment of his business and the avoidance of tax duplications at his wife's subsequent death.

But George made a not uncommon error. He had incorporated his business many years ago, put his stock certificates in his safe and forgot about them. But the stock was registered in the joint names of himself and his wife with right of survivorship.

Is It Yours?

This meant that everything he said in his will regarding the careful trusteeing of his business to assure its proper management, control of ownership and tax savings was meaningless. The trust he had provided for was an empty shell because the bulk of his estate was represented by his business. And this passed outright to his wife—not through his will, but by law.

This situation occurs with disturbing frequency. It underlines a basic but often overlooked fact: Only property which you own individually can be controlled by your will. Many people have substantial property which they think of as their own but which actually their will cannot cover.

A U. S. Savings Bond registered as "payable on death" is one example. A savings account in the name of the depositor "in trust for" a minor is another. A common type of such property—and a substantial investment in the average estate—is insurance payable to named beneficiaries. With such assets, the estate is only half planned when the will is drawn. The will must be correlated with plans for whatever property passes independently of it. In the case of jointly held property, however, this is not so easy.

What It Is

Like many other businessmen, George Pike fell for a popular fallacy—that it is good to register property in the names of husband and wife jointly. Actually it is a very poor idea in the great majority of estates of substantial value.

We are not talking now about ownership where two or more people own the same property as "tenants in common"; in such a case when either dies his half passes as part of his estate. We are likewise not talking of "community property" which is recognized in only eight states.

We are concerned with only the types of ownership called "joint tenancy" or "tenancy by the entire-

Death and Taxes

A properly drawn will can save your beneficiaries a considerable amount in taxes. Particularly tricky is the problem of joint property ownership which is covered in this article.

To help you better understand the best method of planning estate handling, The Iron Age is running a series of articles on this subject with the cooperation of the Provident Trust Co. of Philadelphia and the author, Provident Vice-President John J. Buckley.

ties." In these cases when one owner dies his interest dies with him and title to the whole property passes automatically to the survivor. Most real estate and securities in the name of husband and wife are held in this manner.

Advantages Limited

This type of joint ownership benefits mainly people with modest means. Even then the advantages are questionable. For example:

1. There is some protection from creditors. In most states the husband's creditor cannot execute against the jointly held property while the wife is living unless the wife is also liable; the creditor must wait and hope the husband survives.

But alert creditors will get the wife to join in the obligation because it is impossible to give the property as security without her joinder. Hence the protection is of little practical value for contract claims. As to other claims—such as personal injuries and the like—insurance and incorporation offer better protection.

2. In some states property held jointly by husband and wife escapes the state inheritance tax when one of them dies. But state death taxes on property passing to a spouse are generally of little significance when compared to federal taxes. And the latter cannot be avoided by putting property in joint names.

Such property is taxed by the federal government just as if the spouse who put up the money owned it individually. Furthermore, it will be subject to both state and federal tax when the surviving spouse dies, and there is nothing that can be done about it because it is beyond the reach of the first spouse's will.

3. Since jointly held property passes to the survivor by law inde-

pendent of the estate of the deceased joint owner, the expenses of administration are avoided. This is only partially true, since such property is included in the taxable estate of the one who put up the money. Hence the same procedures are needed to register joint securities in the name of the survivor. As a result, savings of administration expenses are not likely to be very significant.

Principal disadvantage of having property — particularly business property—in joint names has already been indicated: The spouse who pays for it is unable to control it by his will. Thus, registering property in this way has all the disadvantages of leaving everything outright to the widow.

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In the case of George Pike, for example, control of the business passed outright to his inexperienced wife instead of his sons and the local trust company he had selected in his will to manage it for her.

Taxwise, the results were disastrous. Because the entire estate was taxed again on his wife's subsequent death, the family's tax bill was about \$80,000 more than it would have been under the careful plan of George's will. This brought total taxes far over the insurance and liquid assets which George had kept outside the business as a tax reserve. When his wife died her heirs had to withdraw cash from the business to pay the taxes.

Get It Back

Moral of George Pike's case is: Don't put property, particularly your business, in joint names of yourself and your wife unless you are positive you want that property to pass outright to her at your death.

But your property is already registered in joint names? You can have it transferred back to your own name if your wife is willing. This must be done with care, however, to avoid unnecessary gift taxes.

The new Internal Revenue Code of 1954 makes a change in the gift tax law. Real estate put in joint names after Dec. 31, 1954, can be transferred back to the sole name of the one who put up the money without incurring a gift tax. But the old law still governs real estate

What You Should Know About Joint Property Ownership:

- ♦ In the case of estates of substantial value it is generally a poor idea to register the property in the names of husband and wife jointly.
- ♦ In some states property held jointly by husband and wife is not subject to state taxes when one of them dies. But state death taxes on property passing to a spouse are usually insignificant when compared to federal taxes, and the latter cannot be avoided by putting property in joint names.
- ◆ Don't put property, particularly your business, in joint names of yourself and your wife unless you are positive you want that property to pass outright to her at your death.
- ◆ If your property is already registered in joint names you can have it transferred back to your name, but this must be done with care to avoid unnecessary gift taxes.

which is owned in joint names prior to Jan. 1, 1955, and all other jointly held property. A transfer of any such property back to the husband's name without the wife getting anything in exchange constitutes a taxable gift, although gift tax exemptions apply.

Change Tax Base

Another solution is to split the jointly held property—putting part in the husband's name and part in the wife's name so that the transaction is treated as a sale rather than a gift—but remember the danger of a capital gains tax.

Another change in the new law gives jointly held property a new income tax base on the death of the joint owner who originally bought the property. Under the old law, if a business was purchased for \$10,000 and had an estate tax valuation of \$100,000 on the death of the joint owner who put up the money, subsequent sale of such property for \$110,000 would result



"Yes, sir, and what can I do for you?"

in a capital gain of \$100,000—the difference between the original purchase price and sale. Under the new set-up the capital gain will be the difference between what it was valued for for federal estate tax purposes and its sale price, or only \$10,000.

While the new Revenue Act does some things to improve the tax situation for jointly held property, the major disadvantage continues. Because such property is not governed by a man's will, he cannot provide for its proper management, cannot control its ultimate distribution. Dying as a joint owner leaves him powerless to minimize subsequent tax duplications. Solution is to get the joint property back into individual ownership, but this should be done only with the advice of a competent attorney.

Working Capital Peaks

Working capital of domestic corporations increased by \$1.2 billion during the second quarter to hit a record \$94.1 billion, the Securities and Exchange Commission reports. Major factor was a \$3.2 billion drop in federal income tax liabilities.

Improvement in liquid position was the result of a \$5.8 billion reduction in current liabilities, mostly the result of the tax reductions. This was partly offset by a \$4.5 billion drop in current assets.

Inventories were estimated at \$65.3 billion at the end of June, a decline of \$2 billion under the first quarter.

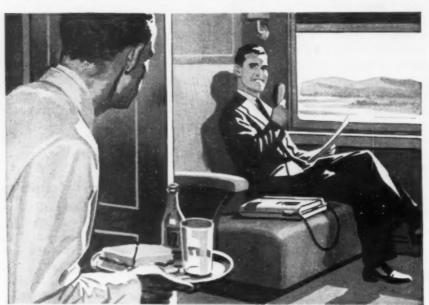
During the second quarter, corporations invested \$5.8 billion in new plant and equipment.

If miniaturization is a problem BERYLLIUM COPPER MAY SOLVE IT



THE PROBLEM. Aware of the trend to smaller, lighter products, Edison engineers set out to create the V.P. Voicewriter—a personal dictating machine compact enough for carrying in a brief case, yet sturdy enough to match the performance of larger units. Several of the V.P.'s vital parts pre-

sented a serious problem of material selection. Besides meeting the over-all objective of space saving, these parts would be required to have a variety of special properties to facilitate assembly and to maintain Edison's high standards for service-free performance.



THE SOLUTION. Thanks to high strength, versatile Berylco beryllium copper, these critical components do a big job, take up little room in the production model of the V.P. Berylco provided every

required feature—both space and performance requirements—in more than adequate measure. And the V.P. was easier to assemble because several of the Berylco parts could be highly stressed without damage.

PERFORMANCE PLUS. Edison selected Berylco beryllium copper not for one valuable property, but many. Conductivity, hardness, stress resistance, wear resistance, nonmagnetic qualities, spring qualities, ability to be fixture heat treated without loss of elasticity—every one was important. In all these requirements Berylco delivers performance plus. That's why it has enabled manufacturers of such diverse things as bearings, precision switches, controls and machine tools to make smaller, lighter, more efficient products. Berylco can help you, too. For sample material or engineering assistance, write The Beryllium Corporation, Dept. 4-J, Reading 6, Pa.

Tomorrow's products are planned today—with Berylco beryllium copper

Bids:

Small business gets break in new bidding plan.

Business firms not on established Defense Dept. bid lists will get an opportunity to request permission to bid under a new Armed Services procurement regulation.

Under the new plan, the military will publish lists of proposed procurement before actual bid specifications are ready.

The new policy, according to Thomas P. Pike, Assistant Secretary of Defense (Supply and Logistics) was developed in cooperation with the Small Business Administration in order to give greater opportunities to small firms.

Publish Needs

Previously, proposed procurements were not published until bid sets were ready to be mailed out to large firms on the "established sources list." Under the new plan, firms not on the regular sources list have 10 days to request they receive a copy of the bid specifications. In addition, a prime contractor may now publish his specific subcontracting needs.

Publication of the procurement needs will be in the Commerce Department's "Synopsis of Proposed Procurements and Contract Awards," a daily publication available to businessmen for \$7 a year.

Navy Asks New Bids

Navy procurement officials have the task of reopening, for the second time, negotiations leading to construction of four escort vessels (DE) at an estimated cost of \$28 million.

Late in July, the Navy disclosed it would award the construction job to New York Shipbuilding Corp., Camden, N. J., subject to the satisfactory completion of contract negotiations.

Early this month, however, the Camden firm called off negotiations, reportedly because of trouble with shipyard employees.

There was no immediate decision by the Navy concerning the ultimate award of the contract.

WIRE: Fall Sales Curve Trending Up

September rod sales 30-40 pct over July . . . See last half well over same period '53 . . . Real upsurge still to come . . . Merchant wire products are '54 sales leader . . . Stress fast delivery—By K. W. Bennett.

♦ SEPTEMBER will be remembered as the month of the switch in wire. Most wire sales chiefs agree that August had been a disappointment. Not only had an early rise failed to appear, but several producers' volume of wire shipments slipped below July.

But September was different. Said one sales official, "September sales of rod ran 30 to 40 pct ahead of July. That doesn't apply to drawn wire yet, but we are sure that when rod goes up, wire will follow."

Over '53

A sales manager, speaking for wire sales, admitted last week that his September shipments of drawn wire moved about 20 pct ahead of the August figure. Another was up 15 pct, another 40 pct, and still another up 15 pct. The figures don't indicate boom, but are concrete evidence that predictions of improving sales through second half have a basis in fact.

Optimists were suggesting that their individual sales for the remainder of the year would co firm September as the beginning of an upward movement that will carry through the year. Estimates of overall sales for the second half of 1954, compared with the poor results of second half 1953, will run over by anywhere from 10 to 35 pct, depending on the producer and his particular type of product.

Merchant Wire Leads

Upturn, first noted about 4 weeks ago, does not represent the full buying potential of the wire consuming market. Fasteners, a heavy buyer of wire grades, have just begun to come in in strength. Appliances have been moving up. Farm equipment has indicated some increase but most sellers of

wire feel the real upsurge is still to come, probably this month. And while automotive has been making some releases in the past 2 weeks, this market is also still regarded as in its beginning stages.

Productwise, merchant products were a runaway leader in the market thus far this year (see chart). Beginning in January with sales at 72.7 pct of January 1953, wire products aimed at the agricultural and light construction markets moved up steadily to a high in June 1954 of 127.2 pct of June 1953 sales. With an expected seasonal fall off in July and August, they've come back strongly. Only thing that will stop them now is the expected seasonal slowdown beginning in November, particularly as

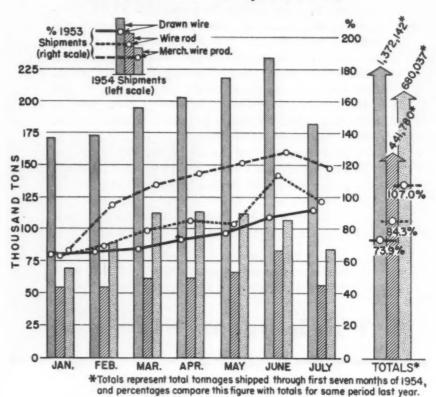
inventories are reduced before tax time. As of July, American Iron and Steel Institute reported shipments in 1954 equalling 107 pct of the same period 1953.

Drawn Grows Steadily

Drawn wire, biggest of the wire products (1,372,142 tons shipped through July, 1954, as compared with 680,037 tons of merchant wire products and 441,780 tons of wire rod in the same period), began slowly in January at 63.5 pct of January 1953 tonnages shipped. Through July, shipped tonnages amounted to only 73.9 pct of those shipped in the same period of the previous year.

But dissecting the figure month by month, it is notable that drawn

How Wire Sales Compare With '53



October 14, 1954

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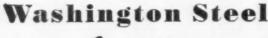
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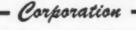


"Thinness Control" means that the decimal thickness of each sheet is uniform throughout the length and width.

Job costs are figured on a square foot basis while stainless steel is purchased on a weight basis. When stainless steel is ordered by gauge number the permissible A.I.S.I. thickness variation is plus or minus 10%. If you receive material on the heavy side of the gauge range you are paying a premium for stainless surface area. For example, if you order 18 gauge, you may receive sheets .052" thick, when a thickness of .0475" would suit your purpose. On a standard 18 gauge sheet (36"x 120") each .001" in thickness weighs 1.26 pounds per sheet. In this example, each stainless sheet could weigh as much as 5.67 pounds more than required. You can readily see the advantages of specifying stainless rolled to the light side of the gauge range. MicroRold stainless is rolled to exceptionally close tolerances, as low as 3% average (plus or minus). Regular use of MicroRold provides more stainless area per ton or the equivalent area with lesser weight.

If you are not now a user of MicroRold sheet it will pay you to get the full details. Your steel distributor will gladly tell you the MicroRold story.





WASHINGTON

PENNSYLVANIA

wire has been improving steadily since January, moved from 63.5 pct to 91 pct of July, 1953, sales in July 1954. Drawn wire is expected to show the largest improvement of wire grades during second half as manufacturers shore up badly depleted inventories.

Wire rod, though a much smaller tonnage item than drawn wire, has fared relatively better. Shipments rose from 61.9 pct of year ago January shipments to a top 113.4 pct in June, fell to 97.9 pct in July. Overall tonnage shipped in 1954 through July was 84.3 pct of the 1953 figure.

Stress Early Delivery

The inventory picture is excellent. Most producers find their customers demanding short delivery, putting on sharp pressure for immediate delivery. Promised delivery ranges from 10 to 30 days with more material moving toward the 30-day figure each week. One increasingly apparent trend: Purchasing agents like delivery of the entire month's order in the first 10 days of the month. This isn't strongly pronounced yet, but is already causing some scheduling difficulty at scattered mills.

The purchasing agent is buying at home. In an area in which two local producers reported an increase in orders from fastener producers each week for 3 consecutive weeks, an out-of-area mill representative indicated that he'd had no buying spurts from his fastener producers, though he expects them.

He has reason to. One of his competitors, currently running 15 pct ahead of last year's sales for this period, confidently expects a 50 pct advance to be hit during fourth quarter this year.

Stainless and heat resisting wire are continuing slow. Sales through July were only 46.3 pct of last year's for the like period. Alloy has been better, but not much, running about 63.4 pct in rod, 54 pct in drawn wire. Though an improvement in these grades is expected, it's still slow in coming with one producer reported cutting output. Welding wire has not been strong, though welding rod has been improving.

JOB SHOP: How To Get Out of The Cellar

Tobin Co. started with one drill press in cellar . . . Now prospering plant . . . Develops special tools for secondary finishing of cold-headed parts . . . Cut costs by redesign, faster processing—By T. M. Rohan

♦ ON A cold February day in 1946 a huge semi-trailer pulled up to the Martin J. Tobin home in Cleveland's quiet residential suburb of Lakewood. It carried three large 500-lb boxes of bolts which the driver and Mr. Tobin succeeded in sliding off the tailgate onto the lawn. After the truck pulled away, Mr. and Mrs. Tobin and some neighbor children rounded up all the pails in sight and formed a bucket brigade to carry in the bolts.

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Next day Mr. Tobin bought a 50-year-old AVEY drill press, with German ball bearings, put it up in his basement and started to drill the 150,000 bolts—a job which every other secondary finishing firm including Tobin's own employer had turned down as too tough to handle at a profit. When it was done 3 weeks later, Tobin was in business.

Expand to Garage

From this hectic beginning, Tobin has built a \$50,000 machine shop for secondary finishing, measuring 5000 sq ft, employing 12 and handling over a million pounds of metal per year, 80 pct of it steel.

First "expansion" came when his wife (who took her turn at the drill press while he was out selling) kicked him out of the basement because he tracked up carpets with cutting oil. Second place of business was the family garage with extra drill press for burring and finishing.

But soon this too was inadequate since the truck was now calling regularly with a half million bolts at a crack. So in 1948 he moved into his present building at Grafton, O., which has been expanded almost every year. Expansions consist of turning production workers into cement mixers, bricklayers, carpenters, etc., until the job is done.

Tobin Co.'s major asset is undoubtedly Martin Tobin's knack of developing special tools and fixtures for rapid secondary finishing. His first small job in 1946 was a direct outgrowth of this.

A major meter manufacturer had been using a high fillister bolt for years to fasten covers on electric meters. The high fillister was used to allow room for drilling a hole underneath the slot to hold a copper wire and lead seal to prevent tampering with the meter. Some utilities still reported customers were able to turn back the meters by chiseling down from the slot to the drilled hole and remove the copper wire and bolt without breaking the seal.

A canny assistant purchasing agent bought a quarter million standard fillister head bolt blanks, planned to have the hole drilled parallel to the slot, not under it. Standard head bolts cost \$2.52 per 1000 against \$21 per 1000 for high heads—and the company used mil-

VOIS!

Martin J. Tobin
He tracked up the carpets.

lions per year. The smaller head bolts were cold headed while larger ones had to be made on screw machines from bar stock at the much higher price.

Saves P. A.'s Day

The P. A. was still looking for someone to drill them when he met Mr. Tobin, then selling special screw products in five states for an eastern firm. Tobin said his firm couldn't do it either but he knew "a friend" who probably would. The friend, of course, was Mr. Tobin himself.

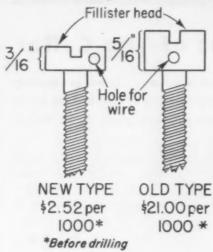
He worked out the drawings for a fixture in his hotel room, made it in a friend's machine shop and turned out a dozen samples with another friend's drill press. A few days later the big truck turned up and the Martin J. Tobin Co. was off to a flying start. The canny purchasing agent, incidentally, is now director of purchases for 10 plants of his firm—admittedly due in large measure to the money saved on the small bolts.

Tobin Co. today is a picture of ingenuity. Older drill presses, roll threaders, turret lathes, milling machines, rotary swaging machines and screw machines have been updated with modern compressed air feeding and operating mechanisms.

Tobin Co.'s biggest stock in trade is being an apostle of the drill press in finishing cold-headed parts, too expensive to process on automatic screw machines in big companies. This occasionally involves redesign of parts to fit the equipment but it is all taken in stride as long as the price is right.

Typical of the redesign is a spider for locating the central nozzle tube in an oil burner. Previously these were castings cost-

How Redesign Cut Costs



ing 4ϕ each and needing two drilling operations, tapping and grinding for a finished price of about 12ϕ - 15ϕ each. Tobin bought threadless cold punch nuts, drilled four 3/16-in. holes on the hexagonal flat sides and a No. 21 hole for a set screw. Wire blanks were then cut to size, fluted and pressed into the holes in the nuts on a drill press.

The brass nozzle tube is passed through the center hole of the nut and fastened with the set screw. Selling price was slightly over 6¢ each—resulting in an order for 50,000 and more on the way. Besides cost savings, breakage by servicemen is also reduced because the wire blanks will bend and can be straightened if the worker presses too hard to remove the tube. The fragile castings were easily broken.

On a steel rocker arm assembly for diesels, the producer had been using expensive machining time on a four-spindle drill press. Tobin Co. put them on its own single spindle machine with fast loading and reject fixtures. Result: a 20 pct reduction in finished costs.

On an aluminum mounting screw for aircraft relays, two holes were to be drilled with 0.004 in. centerline tolerance. These had been drilled one at a time by the supplier. Tobin took on the job, made a fixture for drilling two in rapid succession and tapping a third, reducing costs 32 pct.

Soldiers:

Spurn re-enlistment for civilian life, pay scales.

Defense officials are alarmed over the grave threat to national security posed by loss of skilled manpower. The reason: An increasing number of technically trained servicemen are finding it more profitable to become veterans than to remain servicemen.

Air Force Secretary Harold Talbott says loss of skilled manpower will cost the nation \$2 billion next year. He blames it on the fact that the country "is willing to spend millions of dollars for material and only nickels to operate and maintain it."

A high-ranking member of the Senate Armed Services Committee blames sagging re-enlistments on a lack of balance between service benefits and benefits for veterans. He says low service pay, poor housing, lack of medical care for dependents and absence from families, when contrasted to veterans' benefits, are the main causes.

Enlistments are falling and show signs of slipping even further, Talbott says. Re-enlistments, running at 59 pct 4 years ago, are now only 31 pct.

Talbott points out that 20,000 airmen will be eligible to leave the Air Force during the next

year, and that many will leave unless something is done to make service more attractive. And unless an immediate solution is found, he adds, the Air Force won't be able "to do its job properly."

The Army is having the same difficulty. In announcing creation of five new under-strength divisions, Army Secretary Robert T. Stevens says the strength of his branch will drop from 1.4 million last June to 1.1 million by next June. In an effort to make Army life more inviting and increase re-enlistments, a new rotation plan has been adopted under which entire divisions will be sent overseas as units and returned when the tour is over to a U. S. base.

Congress at its last session passed a new bonus law, which nearly doubles re-enlistment payments, in an effort to overcome the shrinking pool of professional servicemen. Under the new plan, bonuses are based on the number of years of re-enlistment and rank, with higher bonuses for the first re-enlistment.

Delay Nautilus Test

First operational tests of the atomic-powered submarine Nautilus are delayed until some time in 1955 to permit large-scale replacement of steam piping.

Commissioned recently at Groton, Conn., the new vessel was expected to start its trial runs late this month. The necessity of replacing piping which the Navy says is not up to standard will require a delay of at least 3 months.



STARTING starboard engine of new jet B-57 bomber in exhibition maneuvers of the new plane at Langley Air Force Base, Va.

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Report To Management

our foreign policy and maybe it's the Administration's fault. There's nothing too much wrong with the policy—it's about as good as it can be in view of the world situation. The trouble is that for some reason little effort has been made by government officials to inform the U. S. public about what this policy is.

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In a little publicized speech recently, Assistant Defense Secretary H. Struve Hensel came as near nut-shelling the basic facts of our foreign policy as anybody has. This is it:

(1) More and more we're beginning to realize that to speak up we have to be able to put up. State Dept. and the Defense Dept. are working much more closely together than in the past—foreign policy decisions are no longer made until the military factors have been thoroughly thought out. And our military planning is continuously being shaped by our foreign policy objectives.

(2) We know that just matching Russia's military power is not enough. This would only produce a stalemate. To influence weaker nations we have to be stronger than Russia. But we also know that we are weakening our hand by our determination not to use our power unless we are attacked.

(3) We will not fight a preventive war. We will only go to war as a last resort, but we are the ones who will determine what that last resort is.

(4) We know that we must establish and maintain alliances among the nations of the free world to offset the threat of the Soviet bloc. But we are also realistic about our allies; know there will be bickering, disagreements; realize that many of the nations we class as friends have not as yet realized the seriousness of the Red threat.

(5) The Administration will continue to drive for freer international trade as part of its foreign policy in the belief that mutual trade is the best lure to attract allies and the surest way to hold them.

Don't expect any sudden changes if the Democrats take over control of the next Congress. A Democratic victory won't signal a washout for the Eisenhower legislative program, nor will the currently warm business climate the government has created drop more than a few degrees.

Ever since the Republicans have been in power they've had only a fingernail hold on the House and Senate. Only reason the Administration has been successful in pushing through so much of the legislation it wanted is because of the support of a coalition of Republicans and Democrats.

You can figure that if the Democrats do gain control it won't be by any landslide margin. This means the coalition will still be all important—there won't be much change in the support the President will receive from Congress.

Major difference would be that Democrats would take over as chairmen of the numerous House and Senate committees. This means that in some cases proposed legislation, that might be expected to pass if put to a vote, could be bottled up in committee.

When the excess profits tax went off early this year, there were a lot of admen who figured this would be the death kiss for a lot of lush advertising budgets. Thinking was that many advertisers were spending EPT dollars on advertising rather than giving them to the government. It figured that with the end of EPT many of these firms would decide to hold on to this money.

But it hasn't happened this way. Through the first 7 months of the year, advertising expenditures are running 8 pct ahead of '53. As you might expect, media showing the greatest increase over last year is television, up 41 pct.

October 14, 1954

INDUSTRIAL BRIEFS

New Chapter . . . American Society of Tool Engineers has chartered its 120th chapter. Elmer Hopf is the charter chairman of the new chapter at Benton Harbor—St. Joseph, Mich.

Prexy Named . . . The directors of the National Assn. of Foremen named Marion N. Kershner, Armco Steel Corp., the new president of the organization.

Congrats . . . Springfield Foundry Co., Springfield, Mass., is celebrating its 100th anniversary this year.

Being Used . . . Aluminum Co. of America is using the first welded aluminum barges built in this country at its Rockdale, Tex., works.

Big Doings . . . Black & Decker Mfg. Co. held an open house at its recently expanded Hampstead, Md., plant last month. More than 11,000 people attended.

Sales Rep... Adamas Carbide Corp., Kenilworth, N. J., appointed R. C. Dombrow Co., Chicago, as its sales representative for northern Illinois and northern Indiana.

Erected . . . Mullins Mfg. Corp. now has a 105,000 sq ft warehouse addition for storage of Youngstown Kitchens equipment at its Warren, Ohio, plant.

Hear Ye... Detroit Broach Co., Detroit, appointed Production Service Co., Cleveland, as its exclusive distributor in northeastern Ohio. First Time . . . Borg-Warner Corp. has extended its manufacturing operations to the West Coast and has acquired Weston Hydraulics Ltd., with its plant in North Hollywood, Calif., through an exchange of stock. The western firm will be operated as a subsidiary.

New Moniker . . . Edgcomb Steel & Aluminum Corp. is the new name of the former Edgcomb Steel Corp., Hillside, N. J.

Any Tourists? . . . Tennessee Coal & Iron Div., U. S. Steel Corp., resumed its program of semi-weekly escorted tours through its Fairfield, Ala., works at the beginning of last week.

Change Made . . . The Torrington Mfg. Co., Torrington, Conn., has changed the name of its Spring Machinery Div. to the Wire Forming Machinery Div. so that the name will more adequately describe the function of that particular phase of the firm's machinery operation.

They'll Attend . . . Executives and other key personnel of leading commercial heat treating plants throughout the country will attend the thirty-sixth consecutive meeting of the Metal Treating Institute in Chicago Oct. 29-31.

Division Formed . . . American Hoist & Derrick Co., St. Paul, recently installed modern high speed machinery and also enlarged foundry facilities.

Going Up... Pittsburgh Plate Glass Co. broke ground last week in Cumberland, Md., for a new \$34 million plate glass producing plant.



With the exception of bridge movement all crane functions are dependent upon the trolley.

Hence the importance of carefully investigating this vital unit.

Here is a Euclid trolley that will withstand the most critical examination from wheels through welded base and into the most minute details of all components.

It is 22 feet long and equipped with hoists of two capacities and controls to handle magnet and scrap grapple.

Similar expert attention to details is given to EUCLID Crane trolleys of all capacities. We invite your searching investigation.



The EUCLID CRANE & HOIST Co.

1361 CHARDON ROAD

PRODUCTION PROBLEM? PROBLEM With present designs and manufacturing facilities, the auto industry needs wide coils of

if you use flat-rolled steel talk to a specialist

facilities, the auto industry needs wide coils of sheet steel with a minimum number of welds. These welds must be cut out before steel goes into the big presses—a costly, time-consuming process.

and other industries, Great Lakes Steel has developed facilities which now produce wide coils of steel in greater lengths . . . drastically reducing the number of expensive welds in each coil. Result: important fabrication savings for our customers.

machinery . . . if it's flat-rolled steel, you can't lose by talking to Great Lakes Steel—specialists in flat-rolled production and application for 25 years.

Great Lakes Steel

Detroit 29, Michigan



SALES OFFICES IN NEW YORK, CHICAGO, CLEVELAND, GRAND RAPIDS, LANSING, INDIANAPOLIS AND PHILADELPHIA

October 14, 1954

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Autos Must Merit Public's Approval

General manager I. A. Wiles states his highly successful formula for zooming Buick sales . . . "Give people a better product at the right price." . . . Discounts "artificial shortage" merchandising —By R. D. Raddant.

◆ PROBABLY the most important statement of policy and philosophy of automotive competition to come out of Detroit this year was made last week by Ivan L. Wiles, Buick general manager.

As he looked back on what may have been his division's greatest year, his reflections were more of a challenge and a warning to the rest of the industry than a boast of his division's climb to third place in the industry, At the same time, he defended the free competition of the industry against the theory of controlled production and regulated prices.

Speaking at a press preview of the 1955 models, Mr. Wiles pointed out "a lesson to be learned from the shifts in industry position this year," in which some makers suffered sales losses while Buick was moving up. Must Merit Acceptance . . .

"Now I find no great satisfaction in the misfortune of our competitors," he said. "But I do find, as I have said, an interesting lesson. That lesson is that sales success is something that must be deserved and earned—and not something which comes automatically to all members of an industry in equal degree."

This, he said, brought him to the conclusion that sales success in a competitive market, "must start with two essential ingredients: The right product and the right price. And the two must go together." The product must be better, he emphasized, "that people will turn in perfectly good automobiles to get one of the new models."

Voice GM's Views... While Mr. Wiles was speaking only for himself, his remarks can very well be

interpreted as an excellent indication of General Motors policy. It is well known in the industry that the scholarly general manager has the highest possible standing with the "14th floor," Detroit's term for top GM executives.

He hit particularly hard at exponents of a controlled auto production, those "who seem to feel that artificially created shortages of automobiles will bring about a guaranteed annual profit, regardless of quality of management, fluctuations in business conditions, and the competitive strength of the product they have to sell."

Automaking Paces Economy...
He pointed out that control within the industry would be illegal in the first place, but he charged that, even more important, it would be bad business. He theorized that if the auto industry should cut production 20 pct, for example, employment decrease would automatically reduce ability of the retail market to purchase this smaller production of cars. This chain reaction would have a disastrous effect on the entire economy and could readily touch off a recession, he believes.

"When I read that the automobile industry is suffering from overproduction, it is as sensible as saying that America suffers from a high standard of living," he said. "We must never forget that our automobile plants produce two products of great importance to the economy—horsepower and purchasing power."

Emphasize Rear Styling . . . Cadillac started an important phase for the auto industry a few years



PACKARD EXECUTIVES Ray P. Powers vice president of operations and Neill S. Brown manufacturing manager, study plastic model of firm's new Conner Ave. plant where output of '55 cars begins in November.

Automotive Production

(U. S. and Canada Combined)
WEEK ENDING CARS TRUCKS
Oct. 9, 1954... 60,617* 16,840*
Oct. 2, 1954... 66,244 17,866
Oct. 10, 1953... 122,946 25,839
Oct. 3, 1953... 118,894 23,930

*Estimated. Source: Ward's Reports -

ago when it introduced the controversial fins on its rear fenders.

More important than the fins themselves was the fact that they launched a new styling concept of rear end identification. Up to that point in automotive styling, cars were identified principally by front fender, hood and grille treatment while rear fenders were something to be ignored or buried in a sloping tail.

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This has led to something comparatively new in developing new models, particularly when a so-called face-lifting is in order. Instead of just changes in brightwork, trim and grille, face-lifted cars now are getting new rears instead of faces. A lot of this will be seen on 1955 cars that aren't due for the full treatment.

Simplify Model Changes . . . What happens is that the entire rear quarter panel is retooled, giving the car an entirely new appearance from side and rear without going to a complete retooling job. And it might not be as expensive as it sounds.

While the operation is a guarded secret, it is apparent that entirely new dies aren't always necessary.

Occupy Willow Run

Chevrolet is the newest tenant at Willow Run, taking over 896,000 of its several million sq ft of floor space for a major supply depot for its parts and accessories department. It will also build another 125,000 sq ft including rail and truck dockage.

The giant plant which once housed B-24 bomber production during World War II, is now occupied by GM, used for production of Hydra-Matic transmissions. GM purchased the plant more than a year ago from Kaiser Motors after the historic Detroit Transmission fire.

Labor:

UAW will bargain '55 contract with Ford, stress GAW.

It is still months away, but labor relations specialists are already hard at work preparing for next spring's negotiations with the United Auto Workers (CIO). As everybody knows, the 5-year contracts that have done so well in preserving labor peace expire then and all points will be up for renegotiation.

For no particular reason other than it may be its "turn," Ford Motor Co. appears to be slated for UAW's major campaign. In the past, UAW has always picked out one of the Big Three on a major issue and concentrated its efforts on it. When that dispute is settled, the rest of the industry usually falls in line with similar patterns, although not always exactly the same.

This strategy has its obvious advantage in that one company hates to be down because of a strike while others are getting all the production and sales. This would be particularly true in today's competitive market where a lost sale

AUTOMOTIVE NEWS

never can be regained. In this respect, it is a more strategic method than industry-wide bargaining although results are usually an industry-wide pattern.

The big issue, of course, is the guaranteed annual wage. But of almost equal importance, though much less publicized, is the issue of the long term contract itself. In spite of the benefits that are apparent to anyone, many union officials are cool to a continuation of a long term contract.

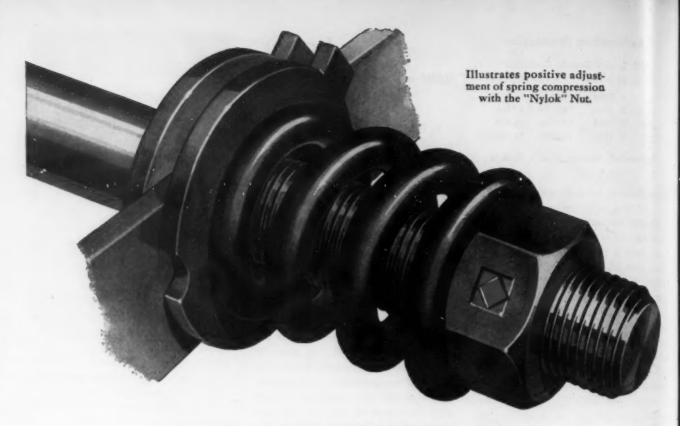
It is recalled that in 1953 the auto companies voluntarily opened negotiations on several points, resulting in the "living documents" theory. This may have saved the principle of the long term contract, although most labor leaders like the sounding board of negotiation coming up more frequently.

A third factor to be included in any evaluation of the auto labor situation is the growing gap between the autoworkers and the steelworkers and a competitive situation in which the autoworkers can't take less than the steelworkers gained without losing face.

THE BULL OF THE WOODS

By J. R. Williams





Republic "NYLOK"* Nuts stay tight wherever you stop wrenching

The nylon plug in the side forces the nut tight against the opposite threads as the nut is turned on. You get positive locking wherever you stop wrenching even under severe vibration. Republic "Nylok" Nuts go on easily. Either end is up. No special tools, lubricants or techniques are needed. "Nylok" Nuts can be backed-off easily, too, and can be re-used. Write for samples, indicating sizes required.

12 WAYS BETTER

Assemble from either end • Can be re-used • Non-galling • Best wrenching characteristics • One-piece • Cold-forged • Won't damage threads • No special tools • Lock in any position • No special know-how • No lubricants needed • Ideal for mechanical feeding

SIZES

Finished Series tapped ¼" through 1" Finished Thick Series tapped ¼" through ½" Heavy Series tapped ¼" through 1"



REPUBLIC STELL CORPORATION

Bolt and Nut Division • Cleveland 13, Ohio
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Bldg., New York 17, N. Y.

Here's how the "Nylok" principle works A nylon plug inserted in one of the sides of the cold-forged nut forces the nut tightly against the opposite threads as the nut is turned on.

*U.S.Pat. No. 2,462,603 and No. 2,450,694 and pending applications,

REPUBLIC STEEL STE



Rising Deficit May Mean Higher Taxes

Widening gap between U.S. revenue and outlays may force tax rates higher next year . . . Spread may hit \$5 billion . . . Little hope held for promised cuts in corporate taxes—By G. H. Baker.

◆ TAX RATES next year may edge up a little higher, rather than come down as had been planned. The widening gulf between federal income and spending is responsible.

This development spells "go slow" to consumers, the public, and to industry in their anticipation of scheduled tax reduction. It means that there is now little hope for the promised reduction in the corporation tax rate of from 52 pct to 47 pct; that higher exemptions for individual taxpayers are postponed indefinitely, and that consumer excises will not be trimmed further and may even increase in some cases.

Unexpectedly high defense and farm outlays, coupled with less-than-hoped-for revenue receipts, are to blame for the spread (it may go as high as \$5 billion this year) between income and outgo. And Treasury Secretary George M. Humphrey says taxes must remain high as long as defense projects continue to gobble up such a huge share of the government's income.

Modernize Merchantmen . . . Modernization of a substantial part of the nation's merchant marine fleet is in the making. It's a multi-million dollar overhaul program, designed not only to inject some efficiency into the older, expensive-to-operate part of the fleet, but also to answer the growing threat of Russian maritime domination.

Details of the program have yet to be spelled out by the U. S. Mari-

time Administration, but high on the list of projects is the installation of speedy new engines in the government's Liberty ships. This will mean increasing the speed of the Liberties from 10 to 15 knots —a speed which should permit the cargo vessels to outmaneuver enemy submarines.

Reds Aim for Top... Naval experts estimate that the frantic rate of activity in Russian shipyards means that the Reds will push the U.S. out of top position as a seagoing power within the next 10 years. Russia already has built its fleet from seventh to second place among world fleets in

Cabinet Campaigns

With only 2 weeks left before the voters choose the political party that will control congress next year, President Eisenhower's Cabinet moves into the final stage of its all-out pitch for a Republican Congress and enactment of the President's 4year program. With the exception of Secretary of State Dulles, every Cabinet member this week and next will be speaking to business, labor, civic or professional groups on the accomplishments of the Eisenhower Administration. Secretaries Mitchell (Labor), Benson (Agriculture), and Mc-Kay (Interior) are by far the most active. Secretary Humphrey (Treasury) is operating in Ohio, Kentucky, Minnesota, and New Jersey. Secretary Weeks (Commerce) is concentrating on fund-raising meetings.

the past 10 years. This means that if the U.S. is to maintain supremacy at sea, we must increase sharply both new construction and modernization programs.

Russia, it should be noted, buys all its merchant vessels from foreign yards, thus permitting its domestic shipbuilding industry to concentrate exclusively on combat-type vessels.

Shift Buying Policy . . . Executive duties related to military materials conservation and surplus property disposal policies are divided between two Assistant Defense Secretaries by a new Defense Dept. order.

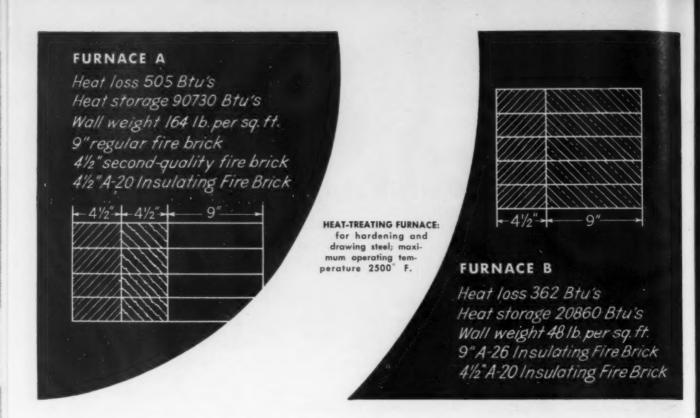
Certain conservation responsibilities are transferred by the order from the Assistant Secretary for Supply and Logistics to the Assistant Secretary for Applications Engineering.

From now on, the Assistant Secretary for Applications Engineering will:

- (1) Set up policies and procedures needed in operating an effective materials conservation and utilization program.
- (2) Provide technical guidance concerning substitution of materials
- (3) Develop a reporting system to facilitate measuring the results of materials conservation and utilization by the military and its contractors.
- (4) Work with cognizant civilian agencies in developing national policies for materials conservation.

The Assistant Secretary for

ON AGE



Which furnace construction helps harden steel more efficiently?

By comparing these two furnace wall constructions, you can see how good design saves fuel, speeds operating cycles, and increases production.

The walls of Furnace "A" were constructed with a 9" lining of regular fire brick backed up by 4½" of second-quality fire brick and 4½" of Armstrong A-20 Insulating Fire Brick. Heat loss measured 505 Btu's per square foot per hour, and heat storage 90,730 Btu's.

In Furnace "B", the 4½" of A-20 Brick were also used as a back-up. But the 13½" of regular and second-quality fire brick were replaced by only 9" of Armstrong A-26 Insulating Fire Brick. The new wall was 1/3 thinner and wall weight in pounds per square foot was reduced from 164 in Furnace "A" to 48 in Furnace "B". Heat loss in

the improved construction measured 362 Btu's per square foot per hour, a reduction of 28%. Heat storage dropped to 20,860 Btu's per square foot per hour—an improvement over Furnace "A". Thus, by increasing the efficiency of the furnace, production capacity is increased and important cost savings are realized.

Do you have a furnace problem?

If you're faced with the problem of building or relining a furnace, don't tackle the job alone. Call in your Armstrong engineer. He can show you the best way to get top operating efficiency from your furnace. Just call your nearest Armstrong office or write Armstrong Cork Company, 2710 Susquehanna Street, Lancaster, Pennsylvania.



Armstrong Insulating Refractories

Supply and Logistics will continue to be responsible for buying policies, surplus property and military-generated scrap disposal, and supply system management. He will also determine relative scarcities of critical materials and possible substitutes for these materials.

Airport Grants... Federal matching funds for airport construction and improvement in the current fiscal year will total more than \$20.4 million, apportioned in 164 separate grants.

Highest priority is being given to those projects which will result in greater safety and efficiency in aviation, says U. S. Commerce Dept., which selects the areas that will get funds.

Federal grants must be matched dollar for dollar by local governments. These grants vary considerably from year to year. In fiscal 1954, for example, funds were withheld while Commerce Dept. reviewed the entire airport program.

Building:

Third quarter outlay was \$10.7 billion.

Contractors have just racked up their best calendar quarter in the history of the construction industry. Dollar outlays for building last month matched the alltime high of \$3.6 billion scored in August, thereby bringing total outlays for the third quarter to an eye-opening \$10.7 billion.

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Residential building keeps on surprising the experts by chugging along at an unabated rate of over \$1 billion a month. It's running about 15 pct ahead of the rate for residential building during the same time last year.

Industrial building is not holding its own, by comparison. After declining almost continuously from January through August, it managed to level off, to hold its own in September. Rate of industrial construction is running about 9 pct behind last year.

Money spent by states, cities and towns for highways, schools, sewers and water is at record-high levels, however. Spending in these lines is about 13 pct. above last year's rate of activity.

So far this year, construction of all types has cost about \$27.4 billion. Of this sum, private outlays are 6 pct higher than in 1953, while public funds are being spent at just about the same rate as in 1953.

Highways:

New federal program shapes up but funds are short.

Tangible answers to the question of where the money is coming from to pay for \$101 billion worth of new construction and improvements in the nation's highways and streets are being sought by both government agencies and high-level advisory groups.

The figure of \$101 billion comes from a recent U. S. Bureau of Public Roads survey of state and local estimates of construction requirements. It would apply to a 10-year modernization program.

From a financial standpoint, this program may not be easy to start. Gen. Lucius D. Clay, who heads the President's Advisory Committee on a National Highway Program, figures revenues that can be turned into construction funds during the next 10 years will be about \$47 billion—unless new revenue sources are found.

Remaining gap of \$54 billion must be filled in some manner. Gen. Clay and his committee intend to recommend to President Eisen-

Specs Now Available

Dictionary of specifications used by the Federal Government in its military and civilian buying is now available to businessmen.

The dictionary with descriptions of the two specificaion systems and examples of how they work is available for 25¢ from the Superintendent of Documents, Washington 25, D. C. It also contains a listing of locations of official specifications libraries where details on quality, dimensions and design on all jobs are kept.

WASHINGTON NEWS

hower before Jan. 1 steps for rounding up the required money.

Two immediately discernible methods, each with drawbacks, merit consideration by the committee. One is a pay-as-you-go plan, requiring a considerable boost in gasoline or other taxes. The other is a method of borrowing money by the sale of long-term bonds, which would contribute to a larger public debt.

Trade:

Commerce Dept. eases some export restrictions.

Foreign trade opportunities are broadened by the U. S. Commerce Dept. It is now possible for U. S. firms to ship a number of additional products and commodities to non-Communist countries without benefit of individual export license.

Items newly removed from the government's "positive list" include certain types of electrical steel sheets and strip; locomotive and railway car wheels, tires and axles; gas and kerosene engines over 10 hp for automobiles, trucks, and buses; electrical integrating meters; core drills for earth and rock drilling machines; geophysical and mineral prospecting equipment; air and gas compressors and blowers; and certain allov steel mill products, including most types of non-nickel bearing stainless steel. Nickel-bearing stainless steel, however, remains on the positive list.

Individual export licenses still are required for shipments to Hong Kong, Macao, Hanoi-Haiphong, Red Indochina, and the Soviet bloc.

In another action, the government added about 20 items to the positive list. Included in this list are certain alloy steel billets; metal manufactures such as phosphor bronze wire rope, cord and cable; monel and nickel manufactures; copper castings and forgings; coaxial cable; industrial machines and parts, and a few industrial and medicinal chemicals.



METAL

for forming and bending
STAINLESS STEEL

Any job of forming or bending stainless steel must be approached with caution because of the tendency to seize and gall. To eliminate scores and scratch marks in bright finish mouldings and trim for automotive, architectural and home appliance use, Pyramid Mouldings, Inc., Chicago, make their forming rolls and bending fixtures of WW-200 HT.

This miracle aluminum bronze has a hardness of 94 Rockwell B (200 Brinell), and at the same time has an extremely low coefficient of friction. For practical purposes, WW Metal provides a self-lubricating action which effectively

prevents scoring and scratching. At the same time, its high hardness and strength make for high resistance to wear, and long tool life.

"Our stainless steel products are mass produced, but high quality and fine finish are essential. Stainless steel is valuable; rejects, rework and scrap losses must be held to the very minimum," says Robert Gielow, tool superintendent at Pyramid. "For the type of work we do, aluminum bronze is the most nearly perfect tool material. And experience has proved to us that WW Metal is the most nearly perfect aluminum bronze."



The ¾° hexagonal tube in the illustration above is made from 0.016″ bright finish stainless steel strip. The tube is formed and lock seamed in one pass through an 11-stand mill shown at left. The critical forming operation and the seaming operation are done with rolls made of WW-200 HT Metal.

WW ALLOYS, INC.

Division of Fansteel Metallurgical Corporation 11644 CLOVERDALE AVENUE, DETROIT 4, MICHIGAN

Home of Premium Quality Alloy Castings and Forgings



IT'S EASY TO MAKE YOUR OWN FORMING AND BENDING TOOLS

WW-200 HT Metal is available in centrifugally cast round blanks (illustrated above), rectangular bars, solid rounds, or specially cast shapes. It is fully heat treated, yet it is easily machined with carbide tools. Ask for engineering data on WW Metal aluminum bronzes; better still, tell us about your forming and bending problems and we will recommend the right grades and shapes.

Y54



Stress Weight-Saving Aircraft Design

Coast airframe designers, builders emphasize weight paring methods
... One extra lb of equipment needs 10 more lbs in engine and structure to
carry it ... Harvey Aluminum boosts forge capacity—By R. R. Kay.

♦ COMBAT PLANE producers should pilot their design thinking on a "fundamental simplicity" beam. With stress on lightweight design, more and better planes would result at less cost to the taxpayer. Twenty-four hundred 15,000-lb planes wouldn't cost any more than 1000 at 30,000 lb each, for example.

"Fundamental simplicity" results when a plane's weight is reduced by design ingenuity, miniaturization, and, in some cases, actual elimination of equipment items. This is possible without sacrifice of performance or reliability, Chief Engineer E. H. Heinemann, El Segundo (Calif.) Div., Douglas Aircraft Co., Inc., assured members of the Society of Automotive Engineers at its National Aeronautic Meeting in Los Angeles.

One Pound Saves 10 . . . Mr. Heinemann, designer of the carrier-based A4D Skyhawk, smallest-lightest U. S. jet combat airplane, gave A4D weight-saving examples: 17½-lb air conditioning unit redesigned to 5½ lb; 172 lb of electronics repackaged to 136 lb; pilot ejection seat weighing 98 lb reduced to 40; and as the plane shrank in size, need for wing folding was gone, and more weight was saved.

Each extra pound needs 10 more pounds in powerplant and structure to support it. At \$50 per pound, it costs \$500 to incorporate one more pound into a plane, Mr. Heinemann told the engineers at the meeting.

Buildup . . . Three forging presses are going into Harvey Aluminum Co.'s Torrance (Los Angeles works. An 8000-ton and two 4000-ton capacity presses, U. S. designed and built, are part of a \$2 million expansion program announced by Leo M. Harvey, chairman of the board. Completion of new buildings is slated for early 1955, with production ready to roll by mid-year.

Aluminum forgings now in production at Harvey are for aircraft, automotive equipment, hand tools, portable industrial equipment, fittings, and high speed mechanisms. Added facilities will include sec-

ondary forging operations of trimming, heat treating, and inspection.

No Steel Slump . . . Magnesium, aluminum, and plastics will not make too serious an inroad in the nation's demand for steel in the decade ahead. . . . To keep up with the nation's booming demand for steel, the industry will be using at least 20 million tons of taconite pellets. These predictions were made in San Francisco by Leo F. Reinhartz, president of American Institute of Mining & Metallurgical Engineers and vice-president of Armco Steel Corp. (See The Iron Age, Sept. 9, 1954, p. 78.)

Backlogs Grow . . . Axelson Mfg. Co. Div., Pressed Steel Car Co., Los Angeles, has a backlog of orders in excess of \$11 million . . . Army Ordnance Corps \$5 million contract to Rheem Mfg. Co. for 155mm chemical shells extends production through February, 1956, at San Pablo (San Francisco area) plant. Backlog is now \$8 million for ammunition . . . Operation resumed on No. 1 blast furnace at Ironton Plant, Geneva (Utah) Works, Columbia-Geneva Steel Div., U. S. Steel. Furnace has been on standby basis since early 1954. About 200 workers were recalled.

Planning to Expand . . . Willys Motors, Inc., Palo Alto, Calif., planning a \$500,000 new electronics research and development laboratory as designed by Kaiser Engineers.



"We get Bauxite from British Guiana, Chromite from South Africa, and Cobalt from Rhodesia, then you come along from Brooklyn and turn it into scrap!"

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Cut Production Costs: send for these

FREE KLING BULLETINS

For over sixty years Kling machines have been helping fabricate metals easier, faster and at lower cost. That is why more and more leading companies in every industry are equipping with Kling machines. Here are some of these machines and the jobs they can do for you:

Free Bulletin No. 9200 Tells How

KLING HIGH-SPEED FRICTION SAWS

... enable you to do the job faster

Less time required for cutting beams, channels, rails, angles, squares, rounds or tubes. No set-up changes needed to cut any sequence of structural shapes. Takes place of several separate shears or other type saws. Cut alloy steels, too, in record time!

Free Bulletin No. 2345 Describes

KLING DOUBLE ANGLE SHEARS

... 2 Shears in 1 machine

This high-production machine can give you more and cleaner cuts on many different shearing operations. For instance you can simultaneously shear round bars and bar angles on left side and structural angles and flat bars on the right. Automatic hold-downs as well as automatic lubrication are available.

Free Bulletin No. 600 Shows How

KLING ANGLE ROLLS

. . . cut your costs on structural shapes

If you use beams, angles, tees, bars, channels, rails or other structural shapes or reinforcements, see how you can save money "rolling your own" with Kling Angle Bending Rolls. Kling offers the widest selection of rolls of all kinds, both angle and plate.

Free Bulletin No. 347 Tells How

KLING COMBINATION SHEAR, PUNCH AND COPER

... does the work of many machines

One of these Kling Machines can turn out the work of a separate punch, angle shear, bar shear, plate shear and notcher—yet it costs little more than a single-purpose punch.

Send today for the bulletins in which you are interested.

Makers of Friction Saws, Double Angle Shears, Rotary Shears, Punches, Angle Bending Rolls, Plate Bending Rolls and Combination Machines — found in the "Best of Companies".



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Foreign Builders Soup Up Tools

European exhibits at Milan show feature more weight, power . . . See overall trend . . . German exhibits largest . . . Predict tough future competition for American builders—By E. J. Egan, Jr.

♦ EUROPEAN machine tool builders are putting more "beef" into their equipment in a serious effort to compete more successfully with American-made machines. This impression is widespread among U. S. machine tool executives quizzed by THE IRON AGE on their return from the Fourth European Machine Tool Exposition held in Milan, Italy, last month.

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N AGE

As usual German machine tool exhibits led the field in number and dead weight tonnage. Although the 23 American builders who showed their wares were only the fourth largest exhibitor group numerically, they were third largest in tonnage of equipment on display.

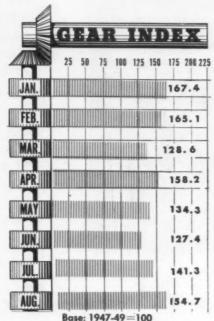
Biggest Yet . . . U. S. machine tool manufacturing and sales executives who attended the Milan Show agree that it was the biggest and best they've yet seen overseas. They noted also that it was well planned and organized, and exceptionally well attended. Many referred to the increased number of exhibitors, apparently some 50 more than contracted for space at last year's show in Brussels, Belgium.

Several of the observer returnees commented on the neatness and orderliness of the Milan Exposition. Contributing to this impression was the number of attractive displays, some of which were classed as being on the lavish side.

Soup 'Em Up . . . But the most noticeable trend in European ma-

chine tools seems to be toward more weight and power. One leading distributor of American metalworking equipment noticed this particularly in products of French, Italian and Belgium builders. He had expected to see the more rugged equipment confined mostly to German and U. S. exhibits, and admitted his surprise that other European firms had lined up some big stuff on their own.

This well-qualified observer tagged the move toward more massive foreign machine tools as evidence of increasingly tough competition for American builders. And the battle for customers won't be confined to Europe and other overseas markets. The fight will be intensified in the U. S. as well he said.



Source: American Gear Manufacturers Assn.

Aim at U.S.... There's plenty of logical background to the awareness among European machine tool builders that heavier and more powerful equipment is needed to beat the Americans at their own game. Traditionally, U.S. products have had the edge in this respect; rugged machines are necessary to stand the gaff of high volume; high quality output in the nation's giant industries.

European builders got a good look at this concept during the Korean emergency. Their industry, reborn after World War II, put on a machine tool show in Paris in 1951 but only the Germans showed up with anything resembling the American idea of heavy-duty machines, and these sold quickly to U. S. firms who couldn't get all the equipment they needed at home.

Push Foreign Sales . . . When the fighting in Korea stopped, sales of foreign machine tools in this country dropped sharply. And with no shooting war going on, every machine tool builder in the world is scrambling for business anywhere he can find it. European builders would like to get their toes back in the door over here but fully realize their only chance is to do it with heavier machines and lower prices.

How the idea will pan out is anybody's guess. American machine toolmakers don't intend to be caught napping on their home grounds. To the contrary, they're making every possible pitch for local business and are stepping up the "foreign subsidiary" angle as a way to boost export sales.

October 14, 1954

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STEEL CORPORATION - Pittsburgh



The Iron Age

SALUTES

Francis J. Trecker

An energetic, progressive force in a traditionally conservative industry, he thrives on the challenge of new ideas as the best guarantee of his firm's prosperous future.

When Fran Trecker, president of Kearney & Trecker Corp., recently announced the formation of a subsidiary firm, Royal Aircraft Corp., to assemble and distribute the Royal Gull, an executive type amphibian airplane, the business world was surprised at this rather unique amalgamation; machine tools and aircraft manufacture.

Not so startled were business associates and friends of energetic, Fran Trecker (he once served as a junior engineer with Pratt & Whitney, holds a multi-engine pilot's license), who have observed his progressive stewardship at K & T since he took over the reins in 1947.

The decisions made by Fran Trecker during the past seven years bear out his executive philosophy—"the business that stands still sinks slowly in the quicksand of oblivion."

In 1948 K & T purchased the Walker-Turner Co., and entered the field of light power tools in time for the "do-it-yourself" boom.

K & T's 1950 purchase of a 39-acre tract in West Allis, Wis., looked upon as a "long range" plan, paid off just two years later when expansion dictated the erection of a \$5-million, 200,000 sq ft plant.

When machine tool orders tapered off at the close of the Korean conflict, K & T adoption of a practical tool leasing plan set a pioneering example in a traditionally conservative industry.

Fran Trecker has not been hesitant in devoting time, energy and executive talent to many worthwhile activities in his community and state. He's a leader in promoting aviation activities in Wisconsin, has worked with the Milwaukee Boys Club, Junior Achievement and Civilian Council of Army Service Forces.

For relaxation, Fran likes to hunt, fish and wrestle with problems arising on his beef cattle farm at Pine Lake, Wis.

Recently he's helped establish Milwaukee Community Development Corp., an organization which gives employees an opportunity to purchase land for their own homes.

October 14, 1954

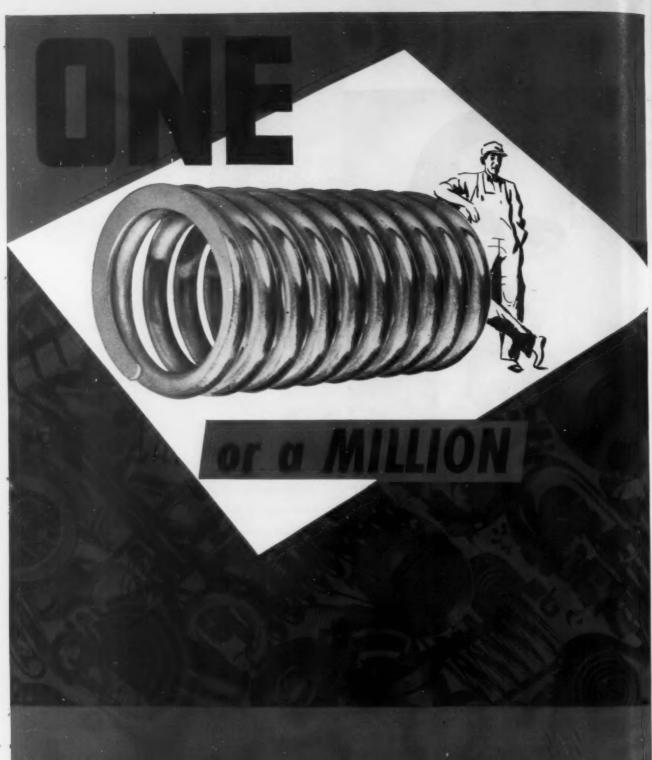
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IN AGE



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In the foundry-

Improved Process Control Assures Economical Production of Extra Low Carbon Cast Stainless

◆ Extra low carbon stainless steels in the 18-8 and 18-8mo grades provide an added margin of safety against failure through corrosion . . . Used where service conditions do not exceed 800°F, the low carbon content (0.03 max) minimizes the problem of carbide precipitation . . . Improved control of foundry operations can bring the advantages of these grades to the user of cast parts on an economical basis.

The production method worked out at Electric Steel Foundry Co. during the past two years requires close control of scrap, and extra care in melting and cleaning operations... The extra low carbon cast stainless is made in both electric arc and induction furnaces... Management feels any high alloy foundry using the single slag basic melting practice and oxygen can produce austenitic stainless steels meeting the low carbon specification.

By R. W. de Weese, Manager, High Alloys Div. and Metallurgical Dept., Electric Steel Foundry Co., Portland, Ore.

◆ A PRACTICAL and economical method of producing extra low carbon (0.03 max) 18-8 and 18-8 mo stainless steel grades in the foundry has been developed by Electric Steel Foundry Co. of Portland, Ore. ESCO's method embraces improved control over scrap preparation, melting and cleaning operations, and the use of oxygen in melting.

Extra low carbon stainless steels were developed to meet two needs. Most important, they provide added safety against failure through corrosion arising from segregation of carbides in austenitic steels. These grades minimize corrosion adjacent to welds under severely corrosive conditions and eliminate as nearly as possible the needs for a complete anneal after welding such alloys. Secondly, they conserve the commonly used stabilizing agents columbium and columbius-tantalum, much of which must be imported.

The extra low carbon grades are widely used where service temperatures are 800°F or below.

Reduction of contained carbon from the normal 0.08-0.10 to 0.03 is the key factor in control of carbides. The small amount of carbon in these grades is insufficient to cause harmful carbide precipitation adjacent to welds.

Too often overlooked is the fact that carbide precipitation is not the result of any one single factor in the normal austenitic alloys. Amount of carbide precipitation is dependent upon carbon content, temperature, and the time at temperature. Even in the extra low carbon grades, a sustained temperature of 1200°F over a period of several hours could readily precipitate what few remaining carbides could be formed and would have a definite bearing upon the corrosion rate.

Manufacture of large tonnages of 0.03 ma:imum carbon austenitic alloys involves a serious element of risk. If the carbon exceeds the maximum limitation, heats must be scrapped. Scrapping of a heat in the foundry has more serious consequences than in the rolling mill where pro-

N AGE

Careful selection of scrap is first step toward production of extra low carbon stainless steels . . . Most of the high alloy scrap used is premelted in pig heats to determine exact composition . . .

duction of a type 304L heat which runs beyond the carbon range results in little loss. The billet will be reclassified as a type 304 and completed in the form of flat rolled or bar products.

In the foundry, however, a variation in the chemistry results in a complete economic loss since the material is already cast into shapes useful only to one customer for one purpose. For this reason greater precautions must be taken within the foundry industry to control composition limits.

The close control maintained over production procedure at Electric Steel Foundry starts with the purchase of selected scrap material. Both carbon and alloy scrap is carefully sorted to avoid contamination with nonferrous and other harmful materials. Most of the high alloy scrap used is premelted in pig heats to determine the exact chemical composition and the presence of detrimental trace elements.

Experience at ESCO indicates it is possible to maintain far closer control of carbon content in the arc furnaces than in the induction furnace. Manufacture of the low carbon grades in the induction furnace means that all materials entering the original charge must be selected in order that the initial carbon content as calculated will not exceed 0.03. Oxygen is not used in induction furnace melting. Thus carbon cannot be removed by that means.

ESCO's arc furnaces are basic lined and control of slag basicity is extremely critical in order to avoid a carbon pickup or "creep." Basicity must be kept low to prevent this creep until

the last few moments of the heat and the slag must then be raised in lime content to obtain chromium recovery.

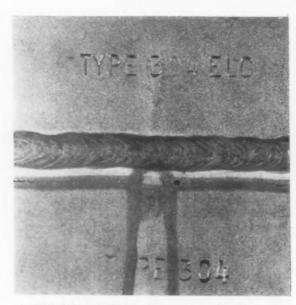
When melting such alloys in the arc furnace, the metal must attain a certain minimum temperature before injection of oxygen. When bath temperature equals or slightly exceeds this minimum, oxygen is introduced directly into the molten material at a pressure of 110 psi through a ceramic protected lance. The length of time of oxygen injection is carefully calibrated with the volume of metal being "boiled" and the initial carbon level. From experience, accurate tables have been developed to determine the number of minutes of oxygen injection necessary to reduce carbon content to any given level.

For the 15 months ending Mar. 31, 1954, ESCO produced over 300 heats of extra low carbon cast stainless in the 18-8 and 18-8mo compositions. The chemical balance of these alloys varied from the partially ferritic to the substantially austenitic ranges.

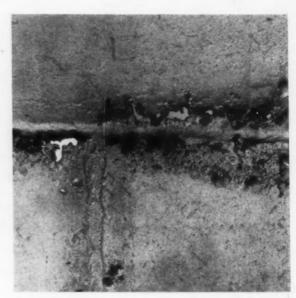
Program of control set up

For the first period of these tests, Table I, average carbon content of the heats produced was 0.029. After the first period a program was established for further reduction in carbon content and for further control measures to maintain a narrower range of carbon variation.

The second period shows a reduction to 0.028 carbon. During the third period carbon averaged 0.026. During the fourth period average carbon dropped to 0.024 and current production



NOTE CORROSION adjacent to weld. Top section of stainless has 0.03 pct C max. Bottom sec-



tion has a carbon content of 0.08 pct. Closeup, above, shows corrosion by carbide precipitation.

of extra low carbon heats has established a new low level for this type alloy. In the No. 1 furnace, a P T Size Lectromelt, average carbon for the last period recorded was 0.020. In the No. 3 furnace, an S T Size Lectromelt, average carbon was 0.014. In the induction furnaces the average carbon was reduced to 0.021. For the final period average carbon for all heats produced in these compositions was 0.018.

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After each successive period for which data was recorded, definite steps were taken to further control the composition and carbon range. Experience indicates the single slag basic melting practice, coupled with the use of oxygen, will enable a properly staffed, high alloy foundry to produce austenitic stainless steels with guaranteed maximum carbon of 0.03.

Simultaneously with production of these alloys numerous test specimens were machined to determine typical physical properties for both the 18-8 and 18-8mo extra low carbon cast alloys. A substantial proportion of the alloys produced in these two compositions is a duplex structure with a relatively high proportion of ferrite. Typical chemical composition for these materials is shown in Table II. From the composition it is apparent that the alloys will be partially ferritic, hence somewhat magnetic. From observation of a large number of test bars of these average chemical ranges, representative physical properties have been established.

Values parallel wrought compositions

In an increasing number of instances industrial applications have required substantially austenitic alloys with lower chromium and higher nickel content to avoid a ferritic structure. Naturally, the physical properties for such alloys vary somewhat from the composition shown in Table II. The substantially austenitic extra low carbon alloys have values parallel to those of the wrought compositions, with the yield strength of the 18-8 extra low carbon grade (ESCO Alloy 40L) ranging about 25,000 to 28,000 psi and with a tensile strength of 60,000 to 65,000 psi. Ductility remains excellent. A similar slight reduction would also occur in the physical values of the austenitic 18-8mo (ESCO alloy 45TL).

As the result of the wide use of extra low carbon alloys in Atomic Energy Program and industrial applications, a number of specifications have been developed covering corrosion testing in the sensitized condition.

One of the most widely accepted is the Hanford Works Specification HW-5301 of the General Electric Co., Nucleonics Div. This test requires that the 18-8L (ESCO alloy 40L) specimen be sensitized for 1 hour at $1250^{\circ}F \pm 10^{\circ}$, water quenched, and then be subjected to 65 pct boiling nitric acid for five 48-hour periods. Average corrosion rate for the five periods must not exceed 0.002 in. penetration per month. A substantial portion of the reports on wrought

TABLE I

AVERAGE CARBON CONTENT, 300 HEATS ELC CAST STAINLESS

| J | AN. 1, 19 1st | 153 TO P 2nd | MAR. 31, 3rd | 1954° 4th | 5th |
|----------------------|------------------|-----------------|-----------------|--------------|--------|
| | Period | Period | Period | Period | Period |
| No. 1 Furnace | 0.032 | 0.030 | 0.024 | 0.026 | 0.020 |
| No. 3 Furnace | 0.028 | 0.031 | 0.028 | 0.022 | 0.014 |
| Induction Furnace | 0.028 | 0.026 | 0.028 | 0.027 | 0.021 |

* PERIODS: 1st, Jan. 1 to Apr. 23, 1953; 2nd, Apr. 24 to June 18, 1953; 3rd, June 19 to Aug. 31, 1953; 4th, Sept. 1 to Oct. 26, 1953; 5th, Oct. 27, 1953, to Mar. 31, 1954.

TABLE II

COMPOSITION AND PROPERTIES

| | Carbon | Man- ganese | Silicon | Chroma | Nickel | Molyb- denum |
|----------------------|-------------|----------------|---------|--------|--------|-----------------|
| ESCO 40L (T-304L) | 0.015-0.025 | 0.81 | 0.70 | 19.4 | 9.7 | |
| ESCO 45L (T-318L) | 0.015-0.025 | 1.13 | 0.68 | 19.8 | 9.7 | 2.8 |

| | Charles Street | Tensile. | Elongation, pol | Reduction of Area, pet | Brinel |
|-------------------|----------------|----------|-----------------|------------------------|--------|
| ESCO 40L (T-304L) | 33,000 | 88,000 | 56 | 75 | 134 |
| ESCO 48L (T-310L) | 45,000 | 79,500 | 46 | 82 | 163 |

TABLE III

HUEY TEST CORROSION RATES

| Heat No. | Carbon | Chromium | Nickel | Penetration* |
|----------|--------|----------|--------|--------------|
| 840L-195 | 0.020 | 19.77 | 9.60 | 0.00063 |
| S40L-196 | 0.021 | 19.25 | 9.85 | 0.00057 |
| S40L-199 | 0.018 | 19.47 | 9.61. | 0.00055 |
| S40L-201 | 0.017 | 19.44 | 9.69 | 0.00063 |
| K-3585 | 0.026 | 19.17 | 9.27 | 0.00058 |
| K-4074 | 0.025 | 18.18 | 10.90 | 0.00101 |
| K-4078 | 0.028 | 19.05 | 10.40 | 0.00059 |
| 408-187 | 0.02 | 18.E0 | 11,10 | 0.00072 |
| K-3468 | 0.034 | 19.25 | 9.20 | 0.00089 |
| K-3504 | 0.03 | 18.62 | 10.68 | 0.00081 |
| K-3628 | 0.024 | 19.48 | 9.15 | 0.00061 |
| K-3639 | 0.03 | 18.39 | 10.77 | 0.00065 |

Inches per month. Average rate for five 48-hour test periods.

specimens which ESCO has observed has averaged between 0.0015 and 0.0008 in. per month.

Twelve random heats of ESCO alloy 40L (Type 304L) were subjected to the Huey test under Specification HW-5301. Corrosion rates averaged substantially below that for a random selection of the wrought alloys, ranging from 0.00055 to 0.00101 in. penetration per month for the five periods. These corrosion rates are far below that allowable under the HW-5301 specification. Similar tests conducted independently by the General Electric Co. and associated laboratories have confirmed this data, Table III.

Freezes dimensions-

Cold Treatment Improves Accuracy, Life of V-Blocks

- ◆ V-blocks are basic tools in the measurement of metal parts. . . . As such their accuracy is of the greatest importance. . . . Blocks that change in any of their dimensions lose the accuracy that has been built into them.
- ◆ To stabilize V-block dimensions during manufacturing or after they are in service, one company is now using a cold treating process . . . Low alloy carburizing steel used in making V-blocks is given three cold treatment cycles after heat treating . . . Cold treating increases hardness of the V blocks . . . Blocks produced by this method have excellent dimensional stability and can be made to be within 0.0002-in. total accumulated error for any matched set.

By Bruno Sainati,
President, Precision Tool & Mfg. Co., Cicero, III.

♦ HIGHER dimensional accuracy and longer life for V-blocks are being achieved by a new cold treating method. The Frozone process developed by Precision Tool & Mfg. Co., Cicero, Ill., stabilizes the heat-treated structures before finish-grinding and lapping and therefore improves dimensional stability of blocks in service. Complete transformation of austenite to martensite also results in a uniform hard wearing surface. Better finish is obtained and grinding cracks are eliminated. Longer grinding wheel life has been noted due to better grinding conditions.

The cold treatment, along with the precise manufacturing methods used, permits tolerances within 0.0002 in. total accumulated error in any matched set of V-blocks. Besides V-blocks the company manufactures a precision boring head in which some parts are cold treated.

The process begins with the selection of the steel and continues throughout all of the forging, rough machining heat treating and finishing.

Material selected for the manufacture of Precision's Uni-V-Block is SAE 8635. This choice was made so that a thick wear resistant carburized case could be produced upon a tough core which has sufficient hardenability to properly support the case. This material tends to retain less austenite than the higher alloy carburizing grades of steel.

The material is purchased in billet form and hot forged to the necessary bar size to produce maximum grain refinement before processing. The aim is to achieve at least a 4 to 1 reduction in cross-section. In addition to giving a close grain the forging minimizes areas of segregation which may be present.

To remove any decarburization or other surface imperfections from % to 7/16 in. of metal is removed from the forged bar by planing. The bar is cut up into blocks and machined into a V-block to grinding tolerances. About 0.010 in. is usually allowed for grinding. The blocks are then hardened and drawn to 59-61 Rc. After Frozone treatment hardness is 62-64 Rc.

Carburized for 0.050 in. case

The heat treatment consists of gas carburizing at 1675°F for a sufficient length of time to obtain a case depth of from 0.050 to 0.055 in. After carburizing is complete, the temperature of the load is lowered to 1550°F and held for 1 hour then quenched in oil. The



COLD treatment consists of three cycles of heating and cooling from 125 to —125°F.

blocks are tempered at 350 to 375°F for 2 hours. After heat treating, the blocks are given a light grit blast to clean up the surface.

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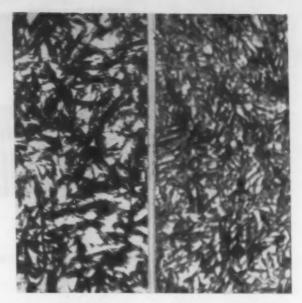
From the tempering operation the rough blocks are taken to an area near the freezer and allowed to cool. As soon as these blocks have reached a temperature of 125°F, they are placed in 6 cu ft Mede freezer unit.

Three chilling, heating cycles

The Frozone treatment consists of three similar cycles of chilling and heating. Each cycle consists of cooling the blocks from 125 to -125°F for 2 hours. They are then removed from the freezer and allowed to warm up to room temperature. After they reach room temperature the blocks are immersed in a water bath held between 125 and 150°F. When they have reached the temperature of the water, the blocks are ready for recycling through the freezing unit. Each cycle takes 8 hours, 6 hours to bring the load to -125°F and 2 hours to hold it at this temperature.

Cold treatment must be done as soon as possible after heat treating to achieve the greatest effect in the least amount of time. Prolonged standing between heat treatment and cold treatment appears to make the retained austenite harder to transform. Cycling, also, seems to produce a greater effect than long soaking periods at cold temperature.

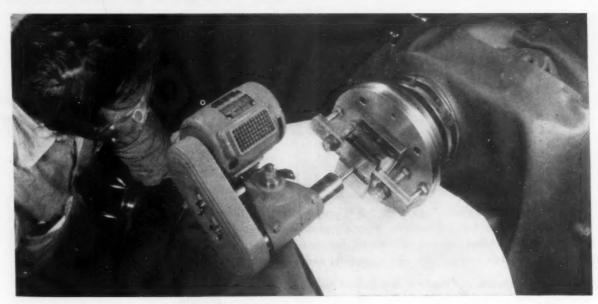
With this cold treatment it is possible to produce stable steel blocks which will not grow in excess of 0.000002 in. per in. after being boiled in water for a period of 24 hours. Sodium dichromate mixture is added to the



Carburized and hardened structure of 8635. X 1000. Left, before, and right, after freezing.

water as a corrosion inhibitor. This test has been established by the National Bureau of Standards as requisite for testing precision gage blocks. All Uni-V-Blocks are subjected to this test before finishing to assure stabilization before any further processing is done.

In addition to the extreme degree of stability achieved by the cold treatment, the tendency toward cracking during finish-grinding is practically eliminated. This is due to the more homogeneous structure produced in the metal.



CLOSE tolerances in finish grinding require ment reduces tendency toward cracking because grinding equipment to be covered. Cold treat-

of more homogeneous metal structure.



GRILLE is greatest single use of zinc diecastings on new model. Five-piece unit weighs 25 lb.

◆ BASED ON A COMPARISON of 1953 and 1954 models of the 4-door Buick Super, this year's model makes greater and better use of zinc discastings. The increase is 21 pct by weight, or more than 10 lb per car. This greater use, both inside and outside the cars, contributes substantially to the appearance of the 1954 models.

Approximately 2 lb of the increase is due to the electric vacuum pump assembly which is part of the power brake circuit added this year. The major increase resulted from a re-evaluation of engineering design. Changes were then ordered to take advantage of the present economies of zinc diecastings in the light of today's situation with respect to competing materials and fabrication processes.

Greatest use of zinc diecastings by Buick is in the grille. Design considerations and ability to provide adequate strength were factors in the selection of diecastings for this application.

Last year, port holes were fabricated as stampings; but in 1954, with zinc diecasting capacity readily available, the port holes are again being diecast, bringing about a cost saving over the stamping design and avoiding previous problems of fitting and assembling.

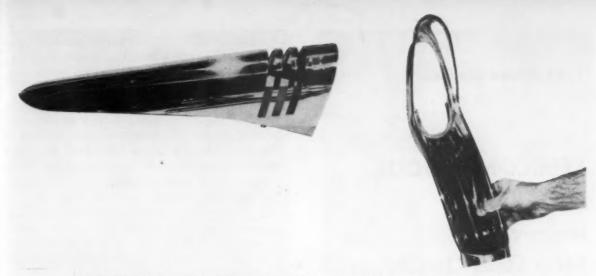
An interesting example of how zinc diecast-

Enough strength plus accuracy-

Zinc Diecastings Lower Assembly Costs Through Better Fits

By W. G. Patton, Asst. Technical Editor

- Greater use of zinc diecastings is not only giving today's cars that sleeker modern appearance, but is simplifying assembly problems by providing better fits . . . Use of diecast port holes on one 1954 model, for example, avoids the fitting problems previously encountered with stampings and at the same time cuts costs.
- ◆ Defroster ducts are now made of two diecast halves with integrally cast rivets and matching holes, thus resulting in perfect alignment and eliminating separate fasteners... By weight, this 1954 four-door sedan has 21 pct more diecastings than its 1953 predecessor.



SLEEK DESIGN is achieved through use of two-piece diecast tail lamp assembly.

ings can cut cost and eliminate assembly operations is found in the defroster duct unit. In this part, Buick takes advantage of a unique fact: many zinc diecasting suppliers have the necessary personnel, facilities and know-how to perform operations beyond the casting of the metal. In this case, the supplier, Doehler Jarvis Div., also puts the unit together. Thus, the part comes completely assembled and ready for installation.

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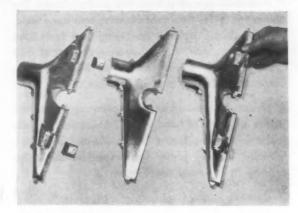
Fits

The defroster duct in the 1954 model consists basically of two mating zinc diecast halves. Ease of assembly results from designing one component to be cast with integral rivets and the other with matching holes. No machining operations are required. Becuse of the high degree of dimensional accuracy inherent in the diecasting process, the halves go together in perfect alignment. The supplier merely peens over the integral rivets and the duct is ready for delivery as an assembled unit.

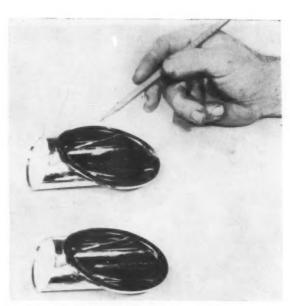
The 1954 zinc diecast assembly, because of its thin sections, ease of assembly and dimensional accuracy, boasts substantial cost-saving features. For this reason, it was selected in preference to a proposed welded steel stamping assembly.

On the Special models, the four defroster diffuser parts (inner and outer, right-hand and left-hand) are zinc diecastings. One-piece zinc alloy units are used for the outer diffusers on the Super and Roadmaster lines.

Ease of plating and painting, lack of shape limitations and inherent high strength make diecast zinc a natural selection for such Buick trim parts as monograms, ornaments and moldings. Ability to produce complex shapes and thin sections, plus a high degree of dimensional accuracy combined with adequate strength, give zinc diecasting definite advantages in such functional applications as the fuel pump, carburetor and speedometer assemblies.



DEFROSTER duct consists of two diecast halves with integrally cast rivets and two mounting tabs, thus eliminating separate fasteners.



DIECAST PORT HOLES eliminate problems in fitting and effect a cost saving. Previously, the port holes were made as stampings.

For bandsaw blades-

SEMICONTINUOUS PROCESSING Improves Strip Steel Quality, Cuts Handling

- ◆ Processed saw strip from this semicontinuous line comes ready for final tooth cutting and band welding . . . Setup includes hardening and tempering furnaces, quench tank, hardness check, belt grinders, edge grinder and final inspection . . . Capacity is 1300 lb of strip per hour.
- Strip stock moves from one operation to another with a minimum of handling . . . A special hardness tester in the line has a 30-in. lateral travel . . . Machine can be preset for desired hardness according to customer requirement.

By J. B. Delaney Pittsburgh Editor



SAW strip stock entering hardening furnace. Speed varies from 2-8 fpm depending on gage.

◆ SEMI-CONTINUOUS PROCESSING of saw strip steel at Jessop Steel Co., Washington, Pa., involves close control of physical properties, gage, camber, and degree of flatness.

A long-time supplier of unprocessed strip to the saw industry, Jessop is now equipped to provide ground and tempered stock finished to the point where only the cutting of teeth and welding into a band is done by the consumer.

Plant setup includes hardening and tempering furnaces, quench tank, hardness check, belt grinders, parallel edge grinder, and final inspection table, arranged so that the workpiece moves from one operation to another with a minimum of manual handling. Present capacity is 1300 lb per hour.

Pinch rolls push raw strip through the gasfired hardening furnace at speeds of from 2 to 8 fpm depending on gage. After passing through flattening rolls at the discharge end, the strip moves into an oil quench at full quenching temperature of approximately 1500°F. Low viscosity quenching oil is maintained at a normal 175°F. Excess oil and scale are removed as the strip passes through a cleaning box prior to entering the tempering furnace.

Three platens engage strip

Three heated platens of nickel cast iron inside the tempering furnace operate off a central hydraulic ram which exerts a pressure of 500 psi. The platens serve the double purpose of tempering and flattening. Draw temperature ranging between 950-960°F, depending on analysis of strip in process, is maintained. Furnace operates on a 10-ft stroke which permits all three platens to engage the strip as



STRIP moves through oil quench. Excess oil and scale are removed in cleaning box (right).



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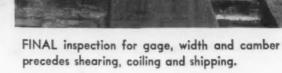
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BELT grinding both sides of the tempered steel strip to required tolerance of ± 0.002 in.



it moves through the furnace. Inside length of furnace is 12 ft.

After tempering, the strip passes through a Jessop-designed dead weight watercooled platen which acts as a simulated quench and provides additional flattening. Also, the steel is cooled sufficiently to avoid the danger of setting while it is coiled prior to check for hardness. First test for flatness is made at this point.

A specially-designed Brinell hardness tester has a 30-in, lateral travel that permits testing at any point on the strip. Usual procedure is to spot-check at center and both ends. Machine is preset for desired hardness, which ranges from the equivalent of 40 to 44 RC, depend-

ing on customer requirement. The tungsten carbide test ball is protected against damage by a heavy steel shield which absorbs excess pressure which may be exerted by the hydraulic ram.

Following a further check for flatness, the strip moves to a belt grinder where it is ground on both sides to a tolerance of ± 0.002 in. A parallel edge grinder, designed and engineered by the company, grinds both edges to finish width and provides a true edge for toothing. Final operation is inspection for gage, width, and camber. Strip is sheared to size, coiled and shipped. Superior physical properties in saw strip have resulted from use of this closely controlled processing procedure.



AFTER tempering and platen-flattening, first flatness test is made while strip is coiled.



SECOND flatness test follows a hardness check made with a specially-designed instrument.

CEMENTED CARBIDES: Wear Resistance Uses Grow

By F. J. Lennon, General Superintendent, Kennametal, Inc., Latrobe, Pa.

- Original high costs and limitations on sizes and shapes of carbide pieces no longer discourage their use in wear resistance applications... Cemented carbides are now made in pieces weighing 100 lb or more, cost about one-ninth what they cost 15 years ago, and contour shaping and intricate forming are commonplace.
- ◆ Their use for slides, rolls, inserts, dies, balls, ratchets and many other machine parts, particularly those which had created serious wear problems, is now effecting substantial savings... Replacement, maintenance and downtime costs have been cut sharply in numerous applications... In others, greater accuracy is achieved for a considerably longer time.
- ♦ CEMENTED CARBIDES are among the outstanding materials in industry's effort to produce longer-lasting products, tools and machines. Although they have been widely accepted for machining ferrous and nonferrous materials, their use in the wear resistance field has not been too extensive, considering their advantages.

Early resistance came from the high cost of the original carbide materials. Also, the limitation on the sizes of parts that could be made originally discouraged the use of carbide as a wear-resistant material. In both respects, the picture has changed considerably. Cost of regular carbide grades is about one-ninth what it was about 15 years ago. Moreover, several carbide manufacturers can now make carbide pieces weighing 100 lb or more. Contour shaping and intricate forming of carbide pieces, considered impossible a few years go, is now commonplace.

Numerous applications prove that cemented carbides, used as wear-resistant materials, add greatly to the improvement of products and processes. In almost every case, they lower fabricating costs by a substantial margin.

A simple, yet effective, application of carbide was made in a midwestern manufacturing company which had been using a high-speed steel flaring tool to form seamless steel tubing in a 74° included angle flaring die. This flaring tool, rotating at 1400 rpm, formed tubes from ¼ in. to ¾ in. diam. After flaring 500 pieces, or 1000 ends, regrinding was necessary due to the roughness on the tool which heated the tubes, causing flaking and cracking on the flared ends.

The high-speed steel flaring tool was replaced by a carbide lathe center nib modified to the proper flaring angle. At the last report, 37,000 tubes or 74,000 ends were finished without any sign of wear on the tool. The finish on the flared ends is consistently superior to that obtained with a newly ground high-speed steel tool.

Longer life offsets higher initial cost

Use of carbide dies has been accepted in many applications as an economical and efficient way of swaging. Compared to steel dies, the higher initial cost of carbide dies is saved many times over during their service life. In forming bulbs from stainless steel tubing, a set of steel dies produced 400 pieces per grind with 10 regrinds, or 4,000 pieces. Carbide dies have since produced 33,500 pieces, requiring only a slight lapping operation and no regrinds. Savings have already amounted to thousands of dollars and the need for replacing the carbide dies is nowhere in sight.

Use of carbide balls presents many possibilities in minimizing the wear problem. In Brinell testing machines, their hardness, rigidity, and wear resistance provides greater accuracy and consistently uniform indentations for longer periods of time than conventional steel balls. Carbide balls and seats have also been used in oil well pumps where wear and breakdown are costly and time consuming.

Carbide balls for gaging, burnishing, and hole sizing are other typical applications. In one case, they were used in an automotive plant to size tappet holes in cylinder blocks. After 20,000 holes, there was no appreciable amount of wear. On the same application, steel balls were worn undersize after sizing 1600 holes.

A manufacturer of band saw blades installed a carbide feed ratchet to compare its life to that of the hardened tool steel ratchet formerly used. Comparative cost and performance data showed that exceptional life and substantial savings resulted from use of the proper grade of carbide.

Slitter knives offer another potential use for carbides. They are used extensively in slitting steel, foil, paper, abrasive papers, plastics, cellophane and rubber. These are just a few cases where carbide slitter knives have been superior to steel.

Withstands abrasive materials

A carbide mandrel nib was substituted for a steel part on a cold-drawing operation on steel tubing. After 80,000 ft of tubing had been drawn, the cost of the carbide mandrel had been saved twice over. At the last check, 314,506 ft had been drawn with only 0.0008 in. of wear on the mandrel nib.

Another unusual application is the use of cemented carbide for nozzles in putty guns. Previously, a steel nozzle wore out after 54 hours. A carbide-tipped nozzle has been used 2080 hours and still shows no sign of wear in the orifice.

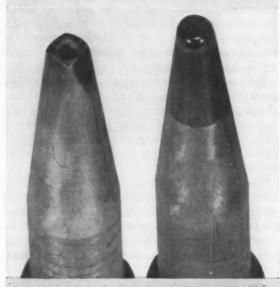
In another application, carbide nozzles are being used in a large glass company to spray ferric chloride on opal glassware to give it an amber color. Quartz nozzles had to be changed twice each shift because of the high abrasive action of the ferric chloride. Carbide nozzles are used three shifts per day for 2 to 3 weeks before replacement is necessary.

A recent operation in the blanking of laminations in high-carbon high-chrome steel reveals an interesting comparison in service life. After 1,250,000 strokes, a carbide die required resharpening. Steel dies had a life of 110,000 strokes before resharpening. Although the carbide die is still in operation, its anticipated life is 156,250,000 pieces as compared to 6,050,000 pieces for the steel die. Die cost per 1000 blanks will average \$0.11 for the carbide die and \$1.33 for the steel die. Additional savings result from lower regrinding costs and reduced downtime.

The different coefficient of expansion between carbide and steel makes brazing of large sections hazardous. Now, this difficulty is being overcome through the use of ethoxylene thermo-



CARBIDE RATCHET has been used in making more than 6 million feet of band saw blades and has outlasted 60 tool steel ratchets.



AFTER 54 HOURS, steel nozzle for putty gun wore out. The carbide-tipped nozzle (right inset) shows no wear after 2000 hours.



DIE COST per blank was cut more than 90 pct by switching from steel to carbide dies in making these electric motor laminations.

Improved carbide materials have made possible many new applications . . . Reduced downtime and maintenance account for savings . . .

setting cements known as the epoxy cements.

This material permits the bonding of carbide to steel with curing temperatures of 400°F and shear strengths up to 7500 psi. Bonding by this method is practical on guide strips, shear knives, gage parts, machine parts, and similar applications. No special skill or equipment is needed for this type of bonding.

Finish rolling of ferrous and nonferrous strip materials is another relatively new application for cemented carbides. Small carbide rolls have been used successfully with outstanding results. Larger rolls up to a 48-in. length and 10-in. diam are now used successfully.

Finer finishes, longer life, and less downtime for roll changes are the principal advantages. The higher initial cost is soon saved by lower production costs. Grinding of carbide rolls with suitable abrasives, such as diamond wheels, is now so commonplace that regrinding no longer discourages roll users.

Replacement of wear parts on production machines with cemented carbide is another example of how downtime and maintenance can be minimized. Carbide wear strips on grinders, lathes, milling machines, presses and other production equipment have resulted in substantial savings.

The field of application for cemented carbides is constantly being expanded by the introduction of new carbide grades. Recently, Kentanium high-temperature materials were developed by Kennametal Inc. Before this development, excessive wear problems at elevated

temperatures were not generally improved with the use of a regular carbide grade. The new material, basically a titanium-carbide composition, is now giving results as outstanding as those for regular carbide at normal temperature conditions.

In one application, Kentanium was used on the anvil of an electrical resistance upsetting machine to upset \(\frac{7}{6} \)-in. Nimonic 80 A rods at pressures up to 450 psi and temperatures up to 2000°F. When using anvils hard faced with a cast alloy material, 50 pieces per redressing was considered very good. Average life with the Kentanium anvil between dressings was 550 pieces.

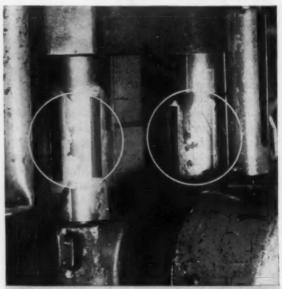
Scarfing tips last longer

Scarfing tips used in steel mills for conditioning billets are usually protected by brazing an outer shell of hard alloy material to the tip. This material is soon worn out by actual contact with the hot billets. In a 150-hour test, an alloy ring was virtually worn out while a Kentanium ring showed no sign of wear.

The titanium-carbide compositions were developed primarily for hot wear applications at operating temperatures that quickly destroy conventional carbides and cast alloys. Some applications for these new compositions include hot tube spinning, hot extruding dies for brass and bronze, crucibles, gas sampling tubes, welding anvils, thermocouple protection tubes, and many other uses where heat and wear are severe.



OPTICAL form grinder is subject to severe abrasion but carbide slides practically eliminate maintenance and give greater accuracy.



BRAZING of carbide wear strips to posts on milling machine not only reduces overhauling costs, but maintains accuracy indefinitely.

Steel Engineers Study Needs In Today's Market

Higher efficiency of equipment and personal, improved maintenance, better control of costs sought as operators study problems of present steel market . . . Increased consumer insistence on quality reflects market conditions . . . Structurals, plate bright spot.

♦ THE SLIGHT UPTURN in the steel operating rate was seen as an encouraging sign by engineers attending the 1954 annual convention of the Association of Iron and Steel Engineers in Cleveland, Sept. 28-Oct. 1.

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A continuing moderate gain in the operating rate in months to come would do much to dispel the feeling of uncertainty concerning the steel sales outlook for the coming year, most steel engineers felt.

Increased buying on the part of steel consumers, particularly in the structural and plate categories, is one of the brighter spots in today's steel market. On the darker side, failure of the railroad industry to come into the market has been disappointing to many steel producers. Most rail mills in the industry are operating at a very low rate.

Along with the restrained optimism over the steel sales picture, engineers at the show placed heavy emphasis on the need for maintaining high quality standards. Consumers, taking advantage of the present easy market for steel, are more than ever insisting that the products they buy meet quality specifications.

Steel engineers looking for ways to cut costs and improve quality found plenty of ideas at the Iron and Steel Exposition held in conjunction with the AISE annual convention. Over 200 steel industry suppliers were on hand to show their latest equipment and processes to over 15,000 visitors at the show.

Operating models of equipment used by many exhibiting firms were of considerable interest to those attending the show.

One of the highlights of the meeting was the awarding of the AISE Kelly Awards for the best technical papers in 1953. This year's first prize went to A. J. Krombholze, Weirton Steel Co., for his paper on "Recovery of Tin from Scrap Tinplate." Second prize went to a joint paper by. F H. Bremmer and F. J. Zender on "Continuous Heat Treatment Produces High Strength Oil Well Casing." "Considerations in the Design of Plain Bearing" won third prize for A. E. Cichelli of Bethlehem Steel Co.

Technical sessions drew a large attendance at the 1954 meeting. Among the many outstanding papers presented were the following:

Mechanism Controls Rate of Ladle Additions

A mechanism called a ladle addition feeder permits much more manganese to be added to the ladle in openhearth steelmaking than what is often considered a practical amount. Provisions in its design for controlling the rate of addition and for making it at the right location in the ladle make this possible.

Use of the feeder, compared to conventional practice, gives these advantages: (1) reduction in manganese consumption because ladle addition

yield is greater than furnace addition yield; (2) manganese additions can be calculated lower without resulting in more missed heats on the low side; and (3) manganese spreads from ladle tests at first, middle and last ingots are reduced.

In terms of economy, the feeder saves from 10ϕ to 30ϕ per ton of ingots, depending on the grade of steel produced.

R. Tietig, Jr., Ferro-Manganese Additions in Open Hearth Steelmaking, A. J. Boynton & Co.

Multiple-Fueled Soaking Pits Fully Automatic

As part of an expansion program, Detroit Steel Corp. installed multiple-fueled circular soaking pits with metallic recovery to benefit from the economy of using plant-produced fuels. The design is such as to efficiently fire either low Btu mixed gas or coke oven gas, or No. 6 fuel oil.

Besides the design considerations to get effective firing with either fuel, provisions had to be made to transfer from one fuel to another quickly so that blooming mill production would not be affected. Another problem was that of obtaining a continuous supply of mixed gas when only one blast furnace was operating.

Pit operation is fully automatic. The equipment, which is designed for the high thermal method to heat ingots faster, has special temperature controls. Mill scale as a "dry bottom" material has provided many advantages.

F. C. McGough, DSC's Multiple-Fueled Soaking Pits, Detroit Steel Corp.

Improved Continuous Batch-Type Annealing Furnace

Exceptionally good performance has been achieved by an improved continuous batch-type furnace for annealing sheets and plates. Among its principal advantages are low fuel consumption, high production rates, versatility, accuracy of temperature control, and a more uniform product.

The bottom of the tunnel-shaped furnace consists of 12 insulated car bottoms. After sheets and plates are loaded onto the car bottom they are covered with a light sheet which rests on a layer of sand, thus sealing the outer car edges. As a pusher on a transfer lorry pushes a loaded car

into the furnace, an annealed load discharges from the opposite furnace end.

In both firing and controlling temperature, the space between the side of the box-type cover and the furnace wall is considered a unit control zone. By arranging the control circuits in series, and placing thermocouples in each face end of the charge and in the combustion space between cover and furnace wall, firing is fully controlled.

R. H. Gelder and W. E. Hand, a Continuous Batch Type Annealing Furnace, Armco Steel Corp.

Continuous Casting Provides Low-Cost Mill Capacity

A commercial continuous casting machine has been recently installed at Atlas Steels, Ltd., Welland, Ont., has proven that casting of large slabs is feasible. Improvements in cooling facilities and techniques also make it possible to cast billets down to 2 in. square at high speeds.

The machine can be operated in a large steel plant as an auxiliary piece of equipment. For the small steel producer, it offers flexibility in steelmaking capacity at relatively low capital cost. Operating cost is moderate.

Carbon and alloy steels in a wide range of analyses can be cast by the process. Its possibilities are virtually unlimited.

J. F. Black, Continuous Casting at Atlas Steels, Ltd., Koppers Co., Inc.

Cold Roll Forming Spreads in High Production Fields

Forming of sheet and strip materials by passing them longitudinally through a series of driven-roll passes has spread to many fields where uniformity, accuracy and high output are required.

Modern machines often have rolls and tooling for making many different products. Rolls can be changed quickly. Roll materials vary depending on the type of production. Hardwood rolls may be used for short runs on thin materials whereas long runs on thick materials require highly abrasion-resistant alloy steel rolls.

Almost any formable material can be processed by cold roll forming. These materials include many types of metal-coated and prepainted steels as well as highly finished stainless steels. Either slit or mill edge materials may be used since any sharp edges can be rounded in rolling.

E. J. Vanderploeg, Cold Roll Forming, The Yoder Co.

Blast Furnace Stack Life Extended

Maximum production of pig iron has been sustained over a 3-year period in blast furnaces having hot spots by prolonging stack lining life through a four-point program. Extended life on

nine stack linings averaged $13\frac{1}{2}$ months. Additional tonnage of pig iron more than justified the expense.

Incipient hot spots were first detected by mak-

ing weekly pyrometer checks of furnace shells. If the temperature reached 200°F, shells were checked more frequently. Higher temperatures required core drilling for closer inspection.

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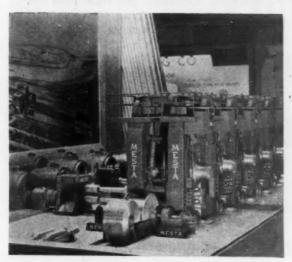
Use of shell sprays, sometimes a steam lance, protected thin linings and aided in building up a protective coating. Another corrective measure was that of pumping grout inside the furnace shell through nipples at the hot spot area. This was repeated for a few days until the condition was corrected or no more grout could be pumped.

If these measures failed and the original lining was gone, copper dovel-type cooling plates were installed by staggering them in rows over the affected area. Shell sprays were then installed over this area. To protect the bare shell, the area was then grouted.

Expansion of hot spots has not always been stopped by these means but results have been very good in that stack lining life was increased by a minimum of 3 months to a maximum of 21 months. In the meantime, furnaces operated well, and tonnage and quality were nearly normal.

R. W. Sunquist, Developments in Extending Blast Furnace Stack Life After Appearance of Hot Spots, United States Steel Corp.

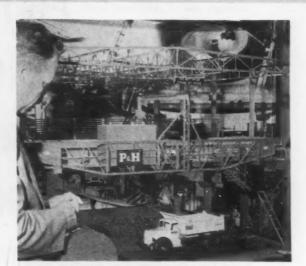
Operating Models Center Show Interest



Small scale rolling mills . . .



Heat treating furnace . . .



Bridge crane model . . .



Continuous casting machine . . .

Highlights of the Show

Temperature Units Standardized

Interchangeability of components for temperature controlling and recording instruments is now possible. Standard components permit use of one basic instrument for high or low temperature work. Slide wire changes and rewiring are not necessary. Greater flexibility and compactness of instrumentation, less time required to switch ranges and lower cost are attained through use of standard units. Leeds & Northrup Co.

Descales, Cleans Strip at 250 fpm

One of the largest mechanical descalers ever built, soon to be installed in a Midwest strip mill, will handle 24- to 54-in. wide strip. Part of an automatic descaling line, it will be followed by a 60 ft acid tank as a secondary cleaner. An average strip 40 in. wide by 0.074 in. gage will be cleaned at 250 fpm. American Wheelabrator & Equipment Corp.

Gages Strip Thickness

X-ray type thickness gage recently developed, can measure strip thicknesses up to 0.075 in. and records it on a strip chart. Gage controls include a deviation indicator which works independently of the recorder. Pratt & Whitney Div., Niles-Bement-Pond Co.

Furnace Conveyor Rotates Tubes

A new type pipe furnace conveyor recently installed at a major mill uses a walking beam type mechanism which rotates the tubes as they travel through the furnace. Entry and exit rolls are skewed to rotate the pipe. Chief advantage is found in ability to achieve more uniform heating. The conveyor can handle pipe 50 ft long and from 2\% to 10\% in. OD. York-Gillespie Mfg. Co.

Mechanical Billet Conditioner

A recently developed mechanical billet conditioner permits a straight through, continuous flow of billets from inspection to chipping to discharge. The unit can handle 30-ft billets of all merchant or bar mill sizes and can efficiently chip all surfaces of the customary grades. Its stationary rotary cutting head may be adjusted in, out and vertically while the billet travels. Continental Foundry & Machine Co.

Measures Loads to 200,000 lb

An electronic crane scale now is capable of measuring loads up to 200,000 lbs. The weighing apparatus fits right into the load block while a printer provides a permanent record of weights measured on tape or cards. The simplified design provides easy installation with the recorder in the cab or at remote location. Harnischfeger Corp.

Non-Flammable Hydraulic Fluid

An oily non-flammable fluid for steel mill hydraulic applications provides safety plus lubricating qualities comparable to those of grade hydraulic oils. The non-toxic fluid contains special inhibitors which also make it noncorrosive. The Houghton Co.

Improved Sensing Device

A new sensing device for accurately measuring and transmitting process temperatures to a central recording or controlling station has been developed. Accurate to better than one pct, the instrument compensates for ambient temperature and barometric pressure. These transmitters have spans ranging from 50° to 400°F and can be used between limits of 100° to 1000°. Foxboro Co.

Production of Heat Exchangers

Simplified production of heat exchangers with greater radiating surfaces is achieved by the application of stud welding techniques. A single stud welding operation performed from one side of a heat exchanger wall fastens radiating projections on both sides of the wall. The idea is applicable to many structures such as furnace doors, tanks, conduit, etc., where heat generated on one side must be removed by radiation from the opposite side. Nelson Stud Welding Div. of Gregory Industries, Inc.

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Phillips "Bits—Holders—Screws" are Exclusive with Continental!

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Continental is the only manufacturer producing this outstanding Phillips fastening combination—bits, holders, and screws. Their development has finally made power driving really practical, even on finished parts.

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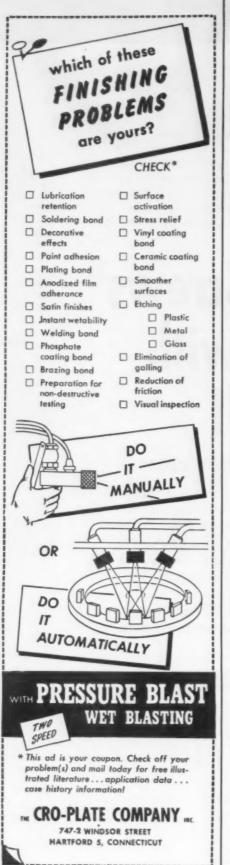
Manufacturers of HOLTITE Fastenings



50th Anniversary

CONTINENTAL SCREW COMPANY

New Bedford, Mass., U. S. A



New Technical Literature:

Machinery catalog

The full Metalwash line is presented in this new catalog. Sections cover machinery for washing, pickling, drying, degreasing, tempering, and accessories. Specifications are included. Metalwash Machinery Corp.

For free copy circle No. 1 on postcard, p. 155.

Refractory selection

A review of practical refractory problems and their solution is presented in this new illustrated booklet. The booklet also discusses nomenclature generally applied to the various classes and types of granular refractories, outlining their characteristics and properties. Applications in both openhearth and electric steelmaking furnaces are covered, as well as gunning and ramming techniques. Basic Refractories, Inc.

For free copy circle No. 2 on postcard, p. 155.

Mining methods

A pictorial review of the Allis-Chalmers line of industrial equipment applied to the mining industry is given in this booklet. The booklet has action photos of crawler tractors, motor and pull-type scrapers, motor graders, motor wagons, and power units. Stressed is how this equipment can increase output per man-hour. Allis-Chalmers Mfg. Co.

For free copy circle No. 3 on postcard, p. 155.

Brass wire

Brass wire is described in this new folder. The folder shows how Titan hot-extrudes, anneals and draws its wire and outlines which tempers are recommended for making rivets, bolts, nuts, fasteners, screws and other cold-headed parts. Grain sizes, weights and tolerances of the brass wire are given, as well as other information. Titan Metal Mfg. Co.

For free copy circle No. 4 on postcard, p. 155.

FOR YOUR COPY

Money-saving products and services are described in the literature briefed here. For your copy just circle the number on the free postcard, page 155.

Welding problems

This booklet discusses how to overcome welding problems and improve welding techniques. Discussed are the causes of stress raisers, starter cracks and hard spots, and methods are indicated whereby they may be avoided. Eutectic Welding Alloys Corp.

For free copy circle No. 5 on postcard, p. 155.

Cooling towers

A detailed explanation of cooling tower construction and applications is given in this booklet. Fluor induced-draft cooling tower construction is described. Heat dissipation problems are discussed. The advantages of "Counterflo" design, methods of water distribution, and all components are covered. Sketches and drawings show the detail of structural and mechanical equipment. Fluor Corp., Ltd.

For free copy circle No. 6 on postcard, p. 155.

Power digger

The Sherman power digger is featured in this illustrated folder. Stressed is the power digger's ability to cut costs and save time on jobs of all types and sizes. "Onthe-job" pictures show the power digger in action. Drawings show the workrange of these power diggers. Specifications are given. Sherman Products, Inc.

For free copy circle No. 7 on postcard, p. 155.

Catalogs & Bulletins

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Locomotive cranes

Ohio's line of cranes are discussed in this illustrated catalog. Pictures show these cranes in action, in the railroad, clamshell, construction, stevedoring, material handling and scrap industries. Pictured are the center casting, pivot pin and roller path. A table of specifications shows the capacities of these cranes. Ohio Locomotive Crane Co.

For free copy circle No. 8 on postcard, p. 155.

Gas purifiers

The Deoxo gas purifiers, for the catalytic purification, hydrogenation and oxidation of gases, are discussed in this folder. Various models are shown and described. The Deoxo process is in use in the petroleum, chemical, pharmaceutical, electrical, metallurgical and food processing fields. Specifications are given for each model described. Baker & Co., Inc.

For free copy circle No. 9 on postcard, p. 155.

Electronic machining

This complete fact file on electronic machining and grinding explains this new process in eight individual bulletins. The bulletins include how it works, cost analysis of difficult machining jobs, how electrodes are made, how to convert from diamone to electronic grinding, and case histories of several die jobs. Elox Corp. of Michigan.

For free copy circle No. 10 on postcard, p. 155.

Lifting magnet

The Ohio Shop-Lifter battery-operated portable lifting magnet for in-plant use is described in this new bulletin. The bulletin gives performance data, specifications, dimensions, etc., for both the 2000and 4000-pound capacity models. Ohio Electric Mfg. Co.

For free copy circle No. 11 on postcard, p. 155. Turn Page

CUTTING COST



HIGH STACKING for down-to-earth savings!

Tremendous savings are being made by a well-known brewer with Towmotor Fork Lift Trucks. High stacking increased usable storage 32%, material flows faster to-and-from production, truck loading is 28 times faster, and the highway truck fleet was reduced 15%. Such savings are yours with Towmotor *Mass Handling. Have a Towmotor Mass Handling Engineer analyze your material handling needs, or write for, "How To Catch Man-Hour Thieves." Tow motor Corporation, Div. 1510, 1226 East 152nd Street, Cleveland 10, Ohio.

*TOWMOTOR MASS HANDLING-Moving more units faster, at lowest cost!



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October 14, 1954

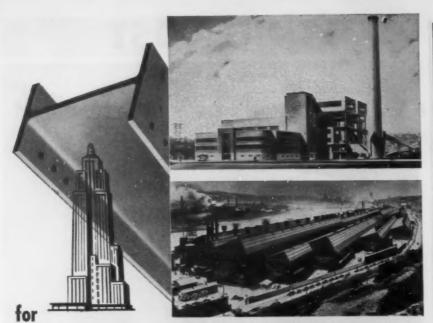
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Specialists in the fabrication and erection of structural steel for steel mill buildings, power plants, assembly and warehouse units, office and commercial structures, institutions,—bridges of all types. • Let us work with you on your next structural steel project.

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FREE TECHNICAL LITERATURE

Idea folder

This is a handy folder in which to file ideas for future reference. The folder contains idea sheets showing many applications for Van Huffel cold formed metal shapes and tubing in the building construction, farm implement, material handling and metal furniture manufacturing fields. Van Huffel Tube Corp.

For free copy circle No. 12 on postcard, p. 155,

Chain drives

Morse Hy-Vo high speed heavy duty chain drives are described in this new folder. Detailed installation and maintenance procedures for the chain drives are discussed. Other subjects covered are sprocket installation, chain assembly, chain cases, lubrication, chain disasembly and maintenance procedures. Disassembly procedures for both washer-type and springlock type connecting links are described also. Morse Chain Co.

For free copy circle No. 13 on postcard, p. 155.

Precision grinders

Multiple wheel grinders for grinding diameters simultaneously are described and pictured in this new catalog. Twelve different tooling setups for various shafts are shown. The Landis 10" and 14" type H-IW multiple wheel grinders are featured. Landis Tool Co.

For free copy circle No. 14 on postcard, p. 155.

Tool steels

Vasco's free machining tool steels are discussed in this new booklet. This booklet outlines the uses, compositions, heat treatment, costs and methods of ordering the most popular grades of free machining high speed and die steels. Vanadium-Alloys Steel Co.

For free copy circle No. 15 on postcard, p. 155.

Steel strapping

Heavy duty flat steel strapping is discussed in this eight-page booklet. Shown are carload, truckload, pallet and unit reinforcement equipment. Technical data is given for each item. Stretchers, sealers, dispensers and seals are shown. U.S.S. Gerrard.

For free copy circle No. 16 on postcard, p. 155. Turn Page Case No.44

Kemp Immersion Heating
Assures Continuous
Steel Strap Production
at Stanley Works

How Stanley doubled steel strap capacity overnight . . . slashed fuel costs, too

Today this bustling division of the famous Stanley Works at New Britain, Conn., turns out steel strapping on a 24 hour basis. Starting with raw, high carbon steel on giant spools, strap is semi-annealed, finished, coated and rewound again for shipping in one continuous process. New rolls of raw steel are simply spot-welded to the ends of rolls to eliminate any interruption.

Kemp Eliminates Bottleneck

From an output limited by the capacity of a gas underfired pot, production was doubled on the installation of a 32 ton Kemp Immersion Melting Pot. In addition, Kemp's greater heating surface, faster heat recovery, lower dross formation and accurate

temperature controls meant real savings in fuel costs. In the words of Mr. Harold Heckman, plant foreman, "Through quicker heating of this pot, we are able to maintain production schedules." And unlike underfired pots, Kemp units eliminate open flame hazards and excessive room temperatures.

Let Kemp Help with Your Problems

If you're dissatisfied with your present heating or melting equipment, consult Kemp first before you make any changes. Let Kemp Engineers show you how they can solve your tempering, annealing, descaling or coating problems quickly and easily. Then just like the Stanley Works, you'll be time and money ahead.

Rear view of Kemp Pot at Stanley Works shows gas feed lines, fire checks, and the Kemp Carbureter (left). Part of every Kemp installation, this carbureter assures complete combustion... without waste... without tinkering. Just set it, and forget it.

For more complete facts, ask for Bulletin IE-11. Write: C. M. KEMP MFG. CO., 405 East Oliver Street, Baltimore 2, Md.

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CARBURETORS - BURNERS - FIRE CHECKS
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IMMERSION MELTING POTS

October 14, 1954

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FREE TECHNICAL LITERATURE

Valve catalog

The "Klingerflow" line of valves is presented in this illustrated catalog. The improved seatless piston valve is featured. Sections cover bronze valves, forged steel valves, cast steel valves and cast iron valves. Drawings and tables give more information. Specifications are given. Richard Klinger, Ltd. For free copy circle No. 17 on postcard, p. 155.

Motion control

The Silentbloc process of vibration control is discussed in this 12-page booklet. Stressed are the advantages of Silentbloc, its construction and its features. Applications are suggested for each item shown. Shown are instrument mounts, machinery mounts, bushings and bearings. Specifications are included in tables. General Tire, Industrial Products Div.

For free copy circle No. 18 on postcard, p. 155,

Pipe saws

The Wachs National Pipe Saw is featured in this new folder. Onthe-job pictures show various features of the pipe saw. Stressed are its ability to cut 10-48" pipes, its safety, speed and simplicity, and the fact that it is portable. E. H. Wachs Co.

For free copy circle No. 19 on postcard, p. 155.

Combination press

The Holmes Combination Hydraulic Forcing and Straightening Press is featured in this specifications manual. Stressed is the fact that this is an entirely new product. Its features include quick-change tables, interchangeable manifold, and adjustable illumination. The press is pictured, and its major construction details are shown. Stanley H. Holmes Co.

For free copy circle No. 20 on postcard, p. 155.

Investment castings

An explanation of the lost wax process is given in this new booklet. The limitations, sizes and weights of parts supplied, tolerances, holes, slots and surfaces, castible metals, and many other aspects of the lost wax process are discussed. Scott Casting & Mfg. Co. For free copy circle No. 21 on postcard, p. 155.

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Before using ZORBALL, Academy Plating had to scrape tallow, grease and abrasive from their polishing-room floor. Even steam cleaning failed to budge deposits.



After using ZORBALL, Academy Plating once again has clean, safe floors. No scraping is required. All that's needed is to spread and sweep up ZORBALL daily.

ZORBALL ends floor scraping at Academy Plating Co.

PREVIOUS to the use of ZORB-ALL on our polishing-room floor, we used scrapers to remove the buffing compounds consisting of tallow, grease and abrasive which had accumulated," reports Herbert Mancini, superintendent, Academy Plating Company, Newark, N.J.

"We also tried a steam-cleaning machine using an alkaline detergent, but it failed to remove these deposits. However, three weeks after applying ZORBALL, the unsightly and dangerous con-

dition was cleaned up by the traction of the polishing operators' shoes on the floor. No labor was required except the daily spreading and removal of the ZORBALL!"

Removing compound deposits is just one of the big benefits you get from ZORBALL—the safest, lowest use-cost floor absorbent known. It absorbs oil, water, paint, chemicals, yet remains skidproof and nonflammable—even after hard use, or when saturated. Dried out, ZORBALL

can be re-used without mudding, caking or dusting. Ask your Wyandotte representative or jobber for a sample or demonstration, today! Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, California.



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TECHNICAL BRIEFS

SESSIONS

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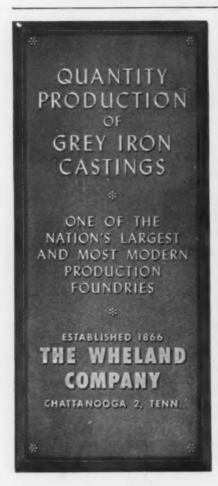
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Send samples or prints for quotations on special stampings and sub-assemblies. Write for bulletin and prices on standard and special case hardware.





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HEADING: Die Life Improved

Improved die life resulted from changing the machining direction on dies . . . Grain flow of the raw die stock changed from longitudinal to transverse . . . Heat treatment improved.

Longer and more consistent die life has been obtained at Inland Steel Co. in the production of railway spikes by changing machining and heat treating practices on dies. Previously, die life was inconsistent in that some dies produced hundreds of kegs while others only produced 50 to 75 kegs. Early failure was usually due to breakage.

Dies Machined Transversely

Inland Steel Co., tool-steel suppliers, and Lindberg Steel Treating Co. cooperated in solving the problem. Investigation revealed two main faults. First, the grain flow was parallel to the direction of principal applied stress. Also, the principal stress was directed against the metallurgical center of the bar.

Both conditions were corrected by using a wider bar and machining the dies so that grain flow was transverse to the main stresses.

Effects of Heat Checking

The principal cause of failure was heat checking which eventually led to die breakage. Once heat checking

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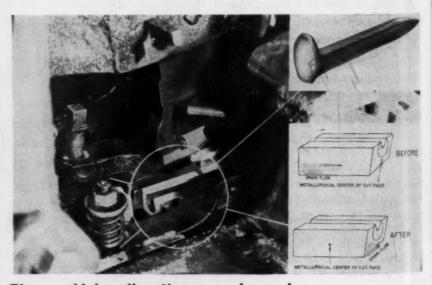
You may secure additional information on any itembriefed in this section by using the reply card on page 155. Just indicate the page on which it appears. Be sure to note exactly the information wanted.

started, the network of cracks acted as notches which promoted rapid fatigue type failures.

To minimize this effect, the following treatment was developed and applied to a quantity of dies:

Pack carburize in charcoal at a temperature of 1850°F to a depth of 0.032 to 0.045 in. Quench in oil and triple temper to 58 to 60 Rc on the case. Blast with sand or steel grit after heat treatment.

The heat treatment was designed to develop compressive stresses at the surface. This delayed start of heat checking and also restrained propagation of the heat checks after they developed.



The machining direction was changed . . .

Inspection:

Scanning device detects, identifies defects automatically.

A new inspection instrument, combining ultrasonics and digital automation in a single unit is now being applied to production line inspection.

The instrument, developed by Sperry Products, Inc., Danbury, Conn., at a cost of \$300,000, derives its name SIMAC from its function—sonic inspection measurement and control. It is being installed in the Quality Control Department, Allison Div., General Motors Corp., specifically for inspecting jet engine rotor forgings and other unfinished engine parts.

Beams Logged on Chart

Completely scanning a circular part mounted on a rotating turntable immersed in water, the instrument automatically beams ultrasonic waves into the specimen undergoing inspection. Beams reflected by structural discontinuities are logged on a chart for interpretation and filing.

The installation comprises a scanning machine, recorder, control cabinet, and an electronic console which is the monitoring station. It also has two accessory units—a punch for preparing a program-controlling tape and a setup table.

Completely Scans Specimens

Scanning is done in a rectangular tank having a turntable in the bottom and horizontal ways at the top. A carriage slides on the ways and is positioned horizontally by a lead screw and nut. A smaller second carriage slides on vertical ways which are affixed to the horizontally-moving unit. A scanning head is pivoted to the vertically-moving carriage.

By the combination of continuously rotating the turntable and horizontal, vertical, and angular Positioning of the scanning head, the specimen is completely scanned by ultrasonic beams which emanate from a quartz crystal transducer in the scanning head.

The part to be inspected is first aligned on a jigging plate. It is

steel fabrication specialists No matter where you are located, you'll find it pays to call on Levinson in Pittsburgh for special fabrication work that requires top engineering assistance or just extreme accuracy and unusually good delivery. Send us an inquiry. Fabricators, Designers, Erectors for over half a century. EVINSON STEEL COMPANY 20th & Wharton Sts., Pittsburgh 3, Pa. Phone HUbbard 1-3200

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then transferred to the turntable of the scanning machine and immersed in water in the tank. The water conducts the ultrasonic waves between the search unit and the part being inspected.

Defects Reflect Beams

A series of scan lines is then developed in controlled sequence until the entire specimen has been probed by the ultrasonic beams. Unwanted discontinuities within the material reflect these beams as echo signals.

The unique method of controlling sequence of the scan lines comprises the first automation known to be applied to automatic material inspection. Each required motion of the scanning head is by a servomotor which is controlled by holes punched in a tape.

First commercial use of the machine will require 15 minutes to test each piece. However, if required, 2 hours of continuous and automatic machine control could be programmed by the tape.

Results Permanently Recorded

A continuous plan view of the results of the ultrasonic test is made on a paper chart, 28 in. in diameter, and a fast-acting recording pen. The resulting permanent record shows all echo signals from the search unit. The chart is used to interpret a test while in process, and can be filed for reference.

All operations are vested in the electronic console. An operator can control the machine manually or start automatic testing. Also, all signals are displayed on the cathode-ray tube for visual monitoring of data the chart record. The Sperry Reflectoscope is a basic part of the complete system.



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Safety:

Handling radioactive materials requires special precautions.

Shipping, storage and disposal of radioactive materials poses new and unique problems for industry, Dr. L. M. Foster, assistant chief of the Physical Chemistry Div., Aluminum Research Laboratories of Aluminum Co. of America recently reported.

These problems stem from the penetrating radiation which radioactive materials emit. Overexposure to such radiation can result in severe tissue damage caused by "burns" not unlike X-Ray burns.

The amount of radiation coming from radioactive materials cannot be reduced in any way: the hazard can only be diminished by providing suitable shielding.

Best shielding is distance, since the intensity of the radiation falls off rapidly as one leaves the source of radiation (decreases as the square of the distance from the source).

Lead Shield Usually Required

This distance requirement can frequently be met by handling the radioactive material with long tongs or forceps. More generally, however, substantial thicknesses of lead or steel must be interposed between the source and the operator.

Radiation from radioactive materials is generally much more penetrating than X-Rays. Although X-Rays can be stopped by thin lead sheet, some radioactive radiation will penetrate several inches of lead shielding.

Considered Class D Poisons

The most common storage and shipping container is a thick-walled lead vessel. For shipping, such a vessel is usually centered in a somewhat larger box to provide the protection of distance, in addition to the lead shielding.

Special provisions have been made by the Interstate Commerce Commission to permit the transportation of radioactive materials. Under these regulations, radioactive materials are considered Class D poisons. Explosives and dangerous chemicals also fall in this class.



October 14, 1954



Townsend Saves Servel \$14,624 On Part For Electric Room Air Conditioner

The many luxury features you enjoy with Servel's electric room air conditioner stem from careful attention to every detail of design and assembly. This enables Servel to provide the benefits of better health and greater comfort in an efficient, moderately priced unit.

This is possible because no part is too small to be thoroughly analyzed as to function and cost. For example, the part shown here is one of the reasons for the efficient assembly of the unit. Four of them are used to mount the compressor, hold it securely in position to help assure smooth, quiet performance.

Until a Townsend engineer devised this improved part, Servel used an expensive machined part. It was cut from a hexagon bar, tapped to receive a bolt which was held in place by a lock washer.

The part as redesigned by Townsend is made in one piece by cold-forming—threads are rolled for greater strength and accuracy. The bolt was eliminated and replaced with a nut and lock washer in the assembly. Scrap loss was cut to virtually zero. The Townsend part is stronger and just as accurate. Annual

savings amount to \$14,624. Servel effects a big reduction in overall costs—at the same time produces a unit that is jampacked with quality and performance.

This is merely one example of how the Townsend method of producing fast-eners and small parts saves thousands of dollars annually for cost-conscious manufacturers in many industries. On material alone, other companies save from \$3.00 to \$125 per thousand pieces—have reduced assembly time and improved their products as well.

In addition to making the best possible products, Townsend has the versatility to produce regularly more than 10,000 special and standard types. It has the capacity to produce these items in tremendous quantity—60 million every day.

This all adds up to why Townsend has become known as "The Fastening Authority"—a reliable source of quality fasteners at reasonable cost. To learn more about the possibilities of new economies in your operation, write for Bulletin TL-89. Or send samples or sketches of the parts you wish improved and we will have one of our engineers call to discuss your problem.

Unique features of these regulations are a limit to the number of boxes that can be transported at one time and specified distance that the driver must remain from the containers.

For example, the shipping label which must be affixed to all such containers reads "No persons shall remain within three feet of this container unnecessarily" and "Do not place undeveloped film within fifteen feet of this container."

Radioactive matedials can be obtained from the Atomic Energy Commission or can be produced in cyclotrons. Certain materials—such as uranium, thorium, postassium—are radioactive in their natural state.

AEC Radiates to Order

Most of the activation of materials not normally radioactive that is performed by the Atomic Energy Commission is carried out in the neutron chain-reacting piles at Oak Ridge, Tennessee, or Brookhaven, New York These installations sell radioactive materials that they produce and stock, or they will irradiate the customer's samples for a nominal service charge.

Similar precautions must be taken in storing to those necessary in shipping radioactive materials. A central, heavy-walled storage pit must be provided where all intense sources are kept prior to use.

This precaution is necessary not only because of the possible safety hazard to personnel, but also because this stray radiation would interfere with the measurement of other samples and would confuse



Tracers in oil . . .



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THE FASTENING AUTHORITY—Experiences over 138 years—Capacity: sixty-million parts daily—Products: over ten-thousand types of solid rivets—cold-headed parts—Cherry Blind Rivets—Twinfast Screws—self-tapping screws—tubular rivets—locknuts—special nails—formed wire parts.

Plants: New Brighton, Pa.—Chicago, Ill.—Plymouth, Mich.—Santa Ana, Calif.

In Canada: Parmenter & Bulloch Manufacturing Company, Ltd., Gananoque, Ontario

TECHNICAL BRIEFS

the interpretation of many experiments. Appropriate labels must be applied to the storage areas designating the amount and type of radioactivity contained therein.

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Have Different Half-Life

In addition to the problems resulting from the hazardous nature of such materials, an additional problem results from the fact that different radioactive substances have different lives-that is, they emit or lose their radiation at different rates depending upon the material.

This rate of decay is characteristic of each radioactive substance and cannot be altered in any way. This factor is measurable, and materials are rated as to "half-life," the time required for the loss of 50 pct of their activity.

The lives of such materials vary from substance to substance over a wide range. Some lose the greater part of their activity in fractions of seconds; others retain theirs for millions of years.

Al Loses Radioactiveness Fast

For a radioactive substance to be useful in research it must retain a measurable amount of activity throughout the duration of the experiment. Thus, some materials cannot be employed at all because of their extremely short lives. Others must be employed in very rapid experiments, while others may be purchased and stocked for many years without any appreciable diminution of their activity.

Radioactive aluminum has a very short useful life. Since aluminum loses its radioactivity in a few minutes, it cannot be used as an active material in experiments.

Sodium is of intermediate life. The activity of sodium diminishes by a factor of two (its half-life) in about fifteen hours. Consequently, to use radioactive sodium in an experiment, a rapid experiment must be planned and the material must be obtained from the activating source as soon as possible.

In the case of Alcoa, the material is put on a plane at Oak Ridge as soon as it comes out of the pile, and is picked up at the airport by research personnel immediately on arrival.



How To Enjoy The Economy Of **Townsend Cold-Formed Parts**

The parts above are not only less expensive than similar items made by other methods, but they are currently saving assembly time, improving quality, design, and appearance of a multitude of products for economy-minded production engineers and designers in many industries.

These parts are but a few of the thousands of types of special parts and fasteners made by the Townsend method which, because of its speed, is economical. Since there is virtually no scrap, material is conserved-you get more pieces per pound of metal.

In many instances it is possible to include washers, nuts and spacers as integral parts of the piece. This reduces assembly time and employee fatigueeliminates separate inventories and

extra parts.

Design is simplified by the Townsend method since it is possible to cold-form unusual shapes such as offsets, wings, flats, ovals-they need not be symmetrical and concentric as with screw machine parts. The basic shape then may be further processed by machintrimming, flattening, bending, drilling and thread rolling.

Since cold-forming increases tensile strength and the flow lines of the metal follow the contours of the piece, your product is improved by having extra strong parts with high resistance to shock and fatigue. Also, Townsend draws its own wire specifically for each application which assures close size tolerances and uniformly good surface finishes. The inherent quality of the parts is high because materials that can be readily cold-formed must be free from inclusions, seams and surface defects. They also must be ductile and highly resistant to cracking.

Townsend supplies these high-quality items in carbon, alloy, stainless steel, copper, bronze, monel, and aluminum in a variety of platings and finishes. Sizes range from diameters of .090" to and lengths of 1/8" up. For more information on the economy of Townsend products, use the coupon below or write for illustrated bulletin.



In Canada: Parmenter & Bulloch Manufacturing Company, Ltd., Gananoque, Ontario

TOWNSEND COMPANY Sales Department New Brighton, Pa.

Please send without obligation "Special Cold-Formed Fasteners and Small Parts" Bulletin TL-89.

| Name | Title |
|---------|-------|
| Company | |
| Street | |
| 614 | |

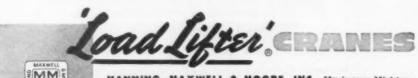


OUTSTANDING IN SERVICE AND LOW PRICE Series "D" Load Lifter Cranes

You get by far the most crane value when you select from the line of Series "D" 'Load Lifter' All-Electric Cranes. Although built for average industrial service, they have performance - proved features made famous wherever "Shaw-Box" Heavy-Duty Cranes are installed.

Despite their superior quality and dependability, Series "D" 'Load Lifter' Cranes are priced surprisingly low. In manufacturing them, "Shaw-Box" applies modern standardization and mass production techniques — takes full advantage of more than 66 years of experience in building load-handling equipment exclusively. That is why you have the assurance of reliable performance, low maintenance and high economy. That is why you can select your Series "D" 'Load Lifter' Crane from a catalog.

Series "D" 'Load Lifter' Cranes are made in 1 to 20 ton capacities — floor and cage-controlled models. All have rigid three-girder bridge construction. All gearing operates in oil in sealed housings. Motor and drive shaft are permanently aligned. The bridge and trolley wheel axles rotate. All bearings are ball or roller bearings. Three basic types and three trolley styles available. Write for full details about today's greatest crane values. Ask for Catalog 221.



MANNING, MAXWELL & MOORE, INC. Muskegon, Michigan Builders of "Shaw-Box" and 'Load Lifter' Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of 'Ashcroft' Gauges, 'Hancock' Valves, 'Consolidated' Safety and Relief Valves, 'American' and 'American-Microsen' Industrial Instruments, and Aircraft Products.

New Books:

"Solder . . . Its Fundamentals and Usage" by C. L. Barber. Provide the solder user with a scientific study of the industrial application and usage of solder. Charts, tables and photographs are included. Kester Solder Co., 4201 Wrightwood Avenue, Chicago 39, Ill., Dept TP. 78 p.

"The Spectrum of Steel" by John Convey and J. K. Hurwitz. Book is a table for the selection of homologous spectral lines. Fundamental information concerning the ultraviolet spectrum of steel alloys is tabulated. Department of Mines and Technical Surveys, Mines Branch, Ottawa. \$1.00.55 pp.

"Air Pollution Abatement Manual" prepared by the Manufacturing Chemists' Assn., under the editorship of C. A. Gosline. Entire manual has been prepared to assist industrial and governmental personnel in achieving abatement of air pollution by the most effective means, and at the lowest cost. It includes information available on the types of air pollution, legislative requirements and technical methods of handling problems. Manual has 13 chapters which may be purchased separately. Manufacturing Chemists' Association, 1625 Eye St., N.W., Washington 6, D. C. \$6.00.

"ASTM Standards on Engine Antifreezes," booklet prepared by ASTM Committee D-15 on Engine Antifreezes. Publication has been compiled to collect all of the American Society for Testing Materials methods of test pertaining to engine antifreezes so as to have them together in convenient form for the use of industry. Pamphlet, "Selection and Use of Engine Antifreezes," prepared by the same committee is to provide consumers with practical information and advice on engine cooling system antifreezes and corrosion inhibitors. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa.

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N E W E Q U I P M E N T

New and improved production ideas, equipment, services and methods described here offer production economies...for more data use the free postcard on page 155 or 156

Shallow tray tiers for transporting large unit loads

A standard, mass-produced tray has been designed to tier in rigid stacks, which permits transporting large unit loads on skids or pallets. The shallow design of the die-made Model No. 224 NesTier tray allows a single layer of parts to be handled without wasted space. Plastic or fiberboard inserts are available

to keep fragile or highly finished parts separated. When trays are tiered, each unit rests on the upraised handle of the tray below; contents are protected from damage; remain both visible and accessible because of double-hopper ends. Chas. Wm. Doepke Mfg. Co. For more data circle No. 35 on postcard, p. 155.



Facilitates retubing condensers and heat exchangers

The Ohmstede bundle slicer was developed to facilitate the retubing of condensers and heat exchanger coils. An abrasive cutoff wheel mounted on a long, movable arm cuts through the worn out tubes to be replaced. One man, using this machine can remove the tubes in 1½ hr. Cutting wheel is a rein-

forced resinoid type wheel, designed especially for Ohmstede Machine Works. Advantages of the wheel are that the tubes are cut clean, without burr; it cuts equally well in either direction of rotation; and will cut both nonferrous and steel tubing. Norton Co.

For more data circle No. 36 on postcard, p. 155.

New machine reproduces translucent drawings

A high capacity whiteprint machine, called the Ozalid Model 800, reproduces translucent engineering drawings and business forms up to 42 in. wide at speeds to 30 fpm. It offers front or rear delivery, is continuous in operation: prints will go directly from feedboard through exposure and development without having to be re-handled. An electronic speed drive permits

instant changes to any speed from 8 to 30 fpm, and a wattage stabilizer maintains constant printing speeds by compensating for voltage fluctuations within the 200-240 volt range. Dry development section has thermostat control to maintain temperature for uniform development. Ozalid, Div. Aniline & Film Corp.

For more data circle No. 37 on postcard, p. 155.





Scrubbing machine removes sludge from metal parts

With a new scrubbing machine sludge can be efficiently removed from complex shaped metal parts after the wet sanding operation in mass production metal forming shops. When the automatic scrubber is installed, the frame remains stationary, straddling the conveyor belt that carries the metal sections underneath a rotating cylinder brush. The brush is counter-

weighted, causing it to rise and fall with the contour of the parts as they pass underneath. An extra long trim on the brush, rotating at 300 rpm, permits access to difficult places. Water from fixed spray nozzles directed at the brush dissolves the sludge. Fuller Brush Co. Machine Div.

For more data circle No. 38 on postcard, p. 155.

Turn Page





WALLINGFORD STEEL

FOR QUALITY STAINLESS STRIP

We specialize in easing "headaches" brought on by the need for . . . an improved product . . . better production . . . reduced fabricating and finishing costs . . . fewer rejects . . . less down-time. We prescribe . . .

WALLINGFORD STAINLESS STRIP

- Thinnesses to .002".
- Accuracy to ± .0001"
- Meets rigid specifications for size, finish, analysis, temper.
- Has smooth, straight edges.
- Gages uniformly.
- Draws easily.
- · Punches cleanly.
- * Special sections rolled to your exact design.

Write today. We'll meet the challenge of your most persistent product, cost and production "headaches" with a staff of specialists — engineers, metallurgists and production experts — well-qualified to administer effective treatment.

THE

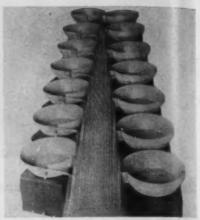
WALLINGFORD



CO.

WALLINGFORD, CONN., U.S.A.

STAINLESS . ALLOY . HIGH CARBON . LOW CARBON . STRIP . STAINLESS WELDED TUBES AND PIPE



Feeding small parts

Nearly a half million parts per hour are fed with this battery of feeders. Fourteen multi - track feeders operating independently—but at the same speed—feed parts 3/16 in. diam x 1 in. long in single line tubes at this terrific rate of speed. Operating flow speed from each track is 140 pieces per min. Peeco approaches each small parts feeding problem from an engineering standpoint and designs special cast bowls for each specific installation. Perry Equipment & Engineering Co.

For more data circle No. 39 on postcard, p. 155.

Portable welding unit

Compact portable welding unit for light gas welding can be used for all commercial aluminum alloys. Basic unit consists of a full 80 cu ft oxygen cylinder, a full B acetylene cylinder; and the accessory group consisting of torch and tips, regulators, twin hose, goggles, wrench and file lighter. Burdett Oxugen Co.

For more data circle No. 40 on postcard, p. 155.



Degreaser uses vibrating spiral-elevator

The Manpro Vibra-Degreaser is a high production machine in which it is said any combination of degreasing cleaning cycles may be incorporated. In performance the small parts to be cleaned are loaded into the hopper from which they are drawn by an electro-magnetic vibratory feeder through a chute and into a pan at the bottom of a spiral-elevator. The spiral

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elevator which also vibrates at a high speed carries the work up through the cleaning cycle to the discharge point. Speed of the elevator is varied by a selector switch in the control box. Principle of vibration is said to maintain a constant flow of work into and out of the machine. Manufacturers Processing Co.

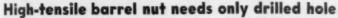
For more data circle No. 41 on postcard, p. 155.



Vertical grinder can get into close quarters

Lightweight vertical grinder for cup wheels, cutoff wheels, sanding pads and wire brushes weighs 6¾ lb, has overall height of 7 in. Speeds of 8000, 6000 and 4500 rpm are listed and the tool has exceptional power. Speed is controlled by quick acting governor threaded into rotor shaft. The dead handle

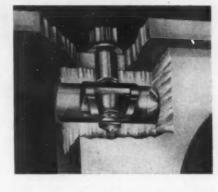
is removable for one-handed operation and live handle can be installed in any of four positions. Automatic oiler and air strainer are built-in. The magnesium motor housing is protected against hard wear by a steel band opposite the handles. Rotor Tool Co. For more data circle No. 42 on postcard, p. 155.



For joining forgings and other structural members without necessity of a large access opening for wrenching, a new self-locking high tensile barrel nut with floating action has been developed. The nut can be inserted in a simple production-drilled hole; permits a simpler stronger, lighter joint, with greatly reduced machining requirements.

Type 2552 nut withstands up to 180,000 psi at the pitch diameter of the bolt, enabling it to meet strength and safety factor requirements for highly stressed aircraft joints. The two piece fastener has an aluminum base to locate the nut body. Body is held in base by the Rollpin. Elastic Stop Nut Corp.

For more data circle No. 43 on postcard, p. 155.



New hydraulic lift handles 12,000-lb loads



The Rotary Levelator Lift is designed to raise loads from plant floor to trucks or different floor levels. Loading docks and ramps are eliminated, plant traffic is speeded and materials handling costs cut. The Levelator Lift has a 6 x 12-ft platform of non-skid steel plate—large and strong enough to accommodate a loaded industrial

power truck. Dual hydraulic jacks will raise it 5 ft 5 in. above the plant floor. Lowered, the lift becomes part of the floor and can be trucked over. Operation is by safe, dependable, economical Oildraulic power. Installation is simple in either old or new buildings. Rotary Lift Co.

For more data circle No. 44 on postcard, p. 155.

Mechanical seal is standard equipment on new pumps

A BJ Mechanical Seal on new closecoupled pumps is emphasized as contributing to low-cost pump operation because it replaces the conventional packing and eliminates the repacking problem, controls leakage, guards against contamination of pumped liquids and protects against volatile liquid hazards.

The pumps are single stage, single suction with enclosed impeller and require no rigid foundation or base. They deliver up to 80 gpm at 75 ft head and handle up to 150 ft heads at lower capacities. Byron Jackson Co.

For more data circle No. 45 on postcard, p. 155. Turn Page



October 14, 1954

167



Another Bedford Mill Type Crane at Timken Roller Bearing Company

The Timken Roller Bearing Company has just installed a new 30-ton Bedford crane over the stripper building in their mill at Canton, Ohio. This is the second Bedford crane to be installed by the Timken Roller Bearing Company at Canton since July, 1952. The new crane has a 61'2" span with 32'5" lift. Built to AISE specifications, it has air-conditioned cab, worm drive gear on the hoist, and welded girders.

Proof of the superiority of Bedford cranes is found in the high percentage of repeat orders from important owners through the years.

Available in all types and sizes . . .

Write for complete catalog

from 5 tons to 350 tons, and up, for all kinds of indoor and outdoor services... each Bedford crane is individually engineered and precision built for its specific application.

Built to the most modern standards and backed by more than 52 years of specialized crane building and utilization experience... Bedford cranes have won fame the world over for advanced design—and for safe, smooth, more dependable performance.

You are invited to consult a Bedford engineer on your next crane problem... with all the facts on the table we believe you too will make your next crane a Bedford.

New York Office: 280 Madison Avenue New York 16, N. Y., Phone MUrray Hill 5-0233



Horizontal disk grinder

New 18-in. horizontal disk grinder is built for quick freehand grinding of a single flat surface on many small parts. The vertical spindle which carries the 18-in. diam grinding wheel, is mounted in anti-

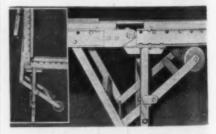


friction bearings. It is driven through multiple V belts from a 5 hp motor mounted on a hinged plate for easy belt adjustment. Outlet for attaching dust collecting system is built into the base. Gardner Machine Co.

For more data circle No. 46 on postcard, p. 155.

Hinged conveyor section

A new structure for the hinged section of roller conveyors has resulted in increased efficiency where frequent openings of a conveyor are necessary. By placing the counterweight beneath the con-



veyor instead of to the side, the weight and supporting arms are compact, take less floor space and will not interfere with the products being conveyed. The construction of the new hinged section requires practically the same effort to hinge the section through its entire movement. No straining on the initial lift nor retarding effort is necessary as the section nears vertical position. Alvey-Ferguson Co. For more data circle No. 47 on postcard, p. 155.

NEW EQUIPMENT

Oval wire strapping

In the steel strapping field, an oval wire strapping combines the economies of round steel strapping wire with the physical characteristics of flat steel strapping. The strapping product is made in a wide range of sizes covering most packaging or general strapping requirements. Machines for applying the oval wire have the No-Waste feature of Step-Gripper wire tensioning. Renois Tying Machines, Inc. For more data circle No. 48 on postcard, p. 155.

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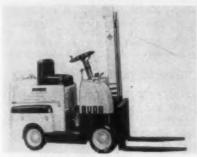
on Co.

i. p. 155.

AGE

Spark proof truck

A series of special spark proof diesel powered fork lift trucks in 3000 and 4000 lb capacities are suitable for use in areas where ordinary, non-protected trucks are prohibited. Use of diesel engines eliminates hazards due to possible electrical sparks. The engine is started by means of a hydraulic



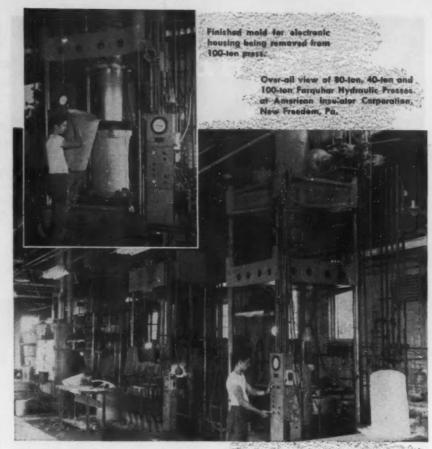
motor. Starter motor is operated from the drivers seat by releasing a mechanical lever. Energy for the starter motor is taken from a hydraulic accumulator. Dash instruments are mechanical or pressure operated instruments. Static-conductive tires, protective wood bumper, and non-sparking metal forks are available. Buda Co.

For more data circle No. 49 on postcard, p. 155.

Tin-holding device

An electromagnetic tinplate holding attachment for fork lift trucks doesn't interfere with other pallet handling operations. The device consists of a magnet placed between the forks parallel to the fork backs. The attachment receives its nower from the truck's electric system. A flick of a toggle switch turns it on and off. Automatic Transportation Co.

For more data circle No. 50 on postcard, p. 155. Turn Page



American Insulator reports:

FARQUHAR HYDRAULIC PRESSES give "closer tolerances and greater strength"*

*A battery of Farquhar Hydraulic Presses currently in operation at American Insulator Corp., New Freedom, Pa., was selected originally because the presses had to be custommade, and Farquhar was in the best position to do this. In addition to this advantage, the Farquhar Presses have now proved to be more economical in operation and capable of maintaining closer tolerances due to greater rigidity of platens. So reports Mr. W. F. Remphrey, foreman of American Insulator's reinforced plastics division.

Three presses (40-, 80- and 100-ton) are used for molding fibre glass for production of classified electronic housings. The same job that formerly required an hour to mold through a vacuum process now takes only 6 minutes on a Farquhar Press! The hydraulic presses feature an automatic

cycle, with one-man loading.

Farquhar Presses Cut Your Costs

The above installation is just one more example of Farquhar performance in heavy production! Farquhar Presses are built-for-the job . . assure faster production due to rapid advance and return of the ram . . . greater accuracy because of extra long guides on the moving platen . . . easy, smooth operation with finger-tip controls . . . longer life due to positive control of speed and pressure on the die . . . long, dependable service with minimum maintenance cost!

For a free catalog showing Farquhar Hydraulic Presses in all sizes and capacities for all types of industry, write to: The OLIVER CORPORATION, A. B. Farquhar Division, Hydraulic Press Dept., 1503 Duke St., York, Pa.



THE OLIVER CORPORATION . A. B. FARQUHAR DIVISION

October 14, 1954





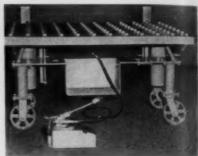
HEED COMPONENT PARTS FOR YOUR PRODUCT?

Find the plant which can supply them in the

CONTRACT
MANUFACTURING
SECTION

Heavy plate positioner

Positioning heavy steel sheets for machining operations can be accomplished easily with a special table adapted for the job. Ball transfers set into the table top on 6-in. centers allow one man to eas-

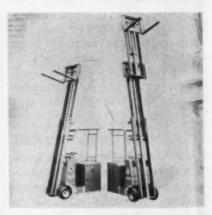


ily position plates measuring 48 x 72 in. and weighing up to 2000 lb. The table top is adjustable from 36 in. in the lowered position to 48 in. in the elevated position. Hydraulic rams operated by a foot pump make height adjustments easy and convenient. Raymond Corp.

For more data circle No. 51 on postcard, p. 155.

Extra high stacking

For use with SpaceMaster electric fork trucks a double telescopic mast gives a fork elevation of 222 in. with a collapsed height of 105 in. Capacity of the truck is reduced approximately 1000 lb and



the truck is lengthened 9 in. by this attachment. Added lifting height permits higher-than-average stacking, enabling every inch of storage space within a warehouse to be utilized to full advantage. Lewis-Shepard Products, Inc.

For more data circle No. 52 on postcard, p. 155.

Optical straightedge checks surface deviations

A beam of light, interrupted by the inscribed reticle of a precision feeler microscope, measures deviations as small as 0.000025 in. on flat surfaces up to 20 in. long., in the Griswold Huet optical straightedge. The 20-in. model brings ease and accuracy of this measuring method to smaller-scale machining or polishing operations. A prism-and-

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lens housing, resting on two metal blocks over the work, permits the microscope to ride along the surface under examination. Deviations observed are indicated by relative position of two indexes, and are converted into linear measurement with a micrometer thimble. F. T. Griswold Mfg. Co.

For more data circle No. 53 on postcard, p. 155.



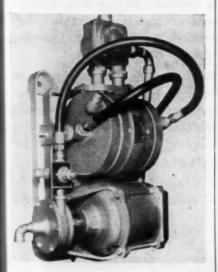
Magnesium chip fires

New M-X magnesium chip fire extinguisher employs a liquid as an extinguishing agent. The agent is non-toxic, non-corrosive, non-abrasive, will not freeze and is a non-conductor. It does not produce excessive smoke or irritiating fumes when in operation and leaves magnesium fires cool enough to handle. It is said to extinguish magnesium fires in seconds. Units can be pressurized with air or nitrogen. Buffalo Fire Appliance Corp.

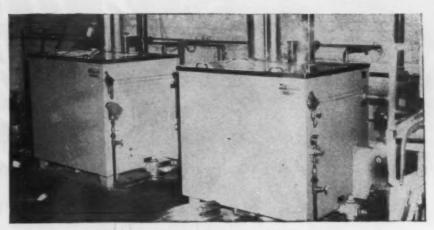
For more data circle No. 54 on postcard, p. 155.

Hot spray heater

Standard industrial finishes are said to give more mileage, and better coverage when they are used with the new all-electric Circaflo 600 hot spray heater. It circulates and heats the paint, maintaining a



uniform temperature at the spray gun, and at constant fluid pressure. Rapid solvent evaporation at the gun head permits deposit of a high-solids film on the work. Spee-Flo Co. For more data circle No. 55 on postcard, p. 155.



Check these Cleaning Results of an eastern job plating shop

- Greatly improved results over vapor degreasing... resulting in better plating.
- ✓ Cost of cleaner reduced by 80%.
- ✓ Steel parts protected against rust up to two days.
- V Elimination of hazardous vapors.
- Greater production through faster cleaning.
- ✓ Complete removal of metal chips from work.
- ✔ Low initial cost low upkeep.

All these results are obtained with the Magnus Aja-Lif Method of cleaning. Write for details.

FOR THE DIFFICULT

Before you decide on any cleaning equipment, investigate the Magnus Methods designed for difficult cleaning.



MAGNUS CHEMICAL CO., INC.

46 South Ave., Garwood, N. J.
In Canada: Magnus Chemicals, Ltd., Montreal
Service Representatives in Principal Cities

October 14, 1954

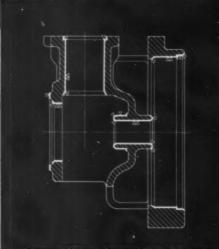
Ex-Cell-O 3-Way Precision Boring Machine. Standard way units—tooled to suit the work.

Note the simplicity of this tooling.



Cut Costs-Combine Combine Operations

... INSURE YOUR PROFITS in Today's Competitive Market



Heavy lines show the machined surfaces. Small single triangles indicate single operations; double triangles indicate rough-and-finish operations. Once a part is properly located and clamped, it's good practice to do as much machining on it as possible before it's moved! Related dimensions are held closer, handling time minimized and production increased.

This Ex-Cell-O 3-Way Precision Boring Machine performs 5 roughing and 18 finishing operations on a cast-iron crankcase used in the refrigeration industry. Tolerances are extremely close on the crankshaft and cylinder bores. Net production for the roughing operation is 33 parts per hour; for finishing, 36 parts per hour.

Ask your local Ex-Cell-O representative about all the other advantages of Ex-Cell-O Way Machines—or write today for Bulletin.



EX-CELL-O CORPORATION

DETROIT 32, MICHIGAN

MANUFACTURERS OF PRECISION MACHINE TOOLS • GRINDING SPINDLES • CUTTING TOOLS • RAILROAD PINS AND BUSHINGS • DRILL JIG BUSHINGS • AIRCRAFT AND MISCELLANEOUS PRODUCTION PARTS • DAIRY EQUIPMENT



The Iron Age SUMMARY ...

Production gains 17 pct in less than 2 months . . . Recovery more rapid than most people realize . . . Auto orders coming faster.

Production . . . Having spurted 17 pct in less than 2 months, steel production is recovering much faster than most people realize. When viewed from week to week, production gains seem modest. But week-to-week comparisons do not show the production trend as clearly as comparison extending over a longer period.

Here are the figures: Week of Aug. 15 the industry operated at 61.8 pct of rated capacity; this week (week of Oct. 10) operations are scheduled at 72.5 pct of capacity, a gain of 17.3 pct. Rate this week is up 1.5 points from the previous week, and the ingot production index is estimated at 107.3 (1947-49 = 100.)

Outlook... Now that the market has gained momentum, still further gains are confidently predicted. Within the next few weeks the industry should be operating at better than 75 pct of capacity. This seems more significant when it is pointed out that about one-fifth of steelmaking capacity represents emergency defense facilities.

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EQUIPMENT

New Orders... This week the already-recovering market is getting an additional shot in the arm—the long-awaited automotive steel orders for new models are showing up in substantial volume.

The Detroit sales office of a major mill reports that September was its best month so far this year on new orders, and October is starting out as if it will be substantially better.

Demand . . . Although the trend is up on virtually all steel products (except those due for a seasonal downturn), demand has risen most spectacularly on cold-rolled sheets, about half of which are consumed by the auto industry. In the Midwest consumers now have to wait an average of about 7 weeks for delivery, compared to about 4 weeks only a short time ago.

It would not be surprising if a shortage of cold-rolled sheets were to develop within a month or so. Aside from obvious improvement in demand, another reason for this is the inventory situation. Some consumers may find that they have carried their inventory correction too far, especially if their own business turns up suddenly.

Fisher Body Div. of General Motors Corp., a huge consumer of sheet and strip, has finally worked off its excess inventory with the last '54 models. For the first time in many months it will now be ordering for its full current requirements.

Steel Output, Operating Rates

| Production | This Week† | Last Week | Month Ago | Year Ago |
|----------------------------------|---------------|--------------|--------------|-------------|
| (Net tons, 000 omitted) | 1,724 | 1,692 | 1,583 | 2,172 |
| Ingot Index | | | | |
| (1947—49=100) Operating Rates | 107.3 | 105.3 | 98.5 | 135.2 |
| Chicago | 73.0 | 73.5* | 69.0 | 97.0 |
| Pittsburgh | 70.0 | 69.0 | 67.0 | 98.0 |
| Philadelphia | 62.0 | 62.0* | 56.0 | 96.0 |
| Valley | 68.0 | 64.0* | 58.0 | 98.0 |
| West | 86.0 | 85.5 | 80.0 | 98.5 |
| Detroit | 93.0 | 93.0* | 77.0 | 92.0 |
| Buffalo | 70.5 | 68.5 | 56.5 | 106.5 |
| Cleveland | 74.5 | 72.5 | 73.0 | 96.0 |
| Birmingham | 74.0 | 74.0 | 75.0 | 96.5 |
| S. Ohio River | 82.0 | 82.0 | 76.0 | 81.0 |
| Wheeling | 94.0 | 93.0* | 95.0 | 101.0 |
| St. Louis | 76.5 | 75.5 | 66.5 | 100.0 |
| East | 47.0 | 47.0* | 49.0 | 99.0 |
| Aggregate | 72.5 | 71.0 | 66.5 | 96.0 |

Prices At A Glance

| (cer | nts per lb | unless | otherwise | noted) |
|--|--------------|-------------|--------------|-------------|
| | This Week | Week Ago | Month Ago | Year Ago |
| Composite prices | | | | |
| Finished Steel, base | 4.798 | 4.798 | 4.801 | 4.634 |
| Pig Iron (gross ton) Scrap, No. 1 hvy | \$56.59 | \$56.59 | \$56.59 | \$56.59 |
| (gross ton) | \$33.00 | \$32.00 | \$29.50 | \$32.33 |
| Nonferrous | | | | |
| Aluminum, ingot | 22.20 | 22.20 | 22.20 | 21.50 |
| Copper, . electrolytic | 30.00 | 30.00 | 30.00 | 29.50 |
| Lead, St. Louis | 14.80 | 14.80 | 14.30 | 13.30 |
| Magnesium, ingot | 27.75 | 27.75 | 27.75 | 27.00 |
| Nickel, electrolytic | 63.08 | 63.08 | 63.08 | 63.08 |
| Tin, Straits, N. Y. | 93.375 | 94.625 | 93.75 | 80.25 |
| Zinc, E. St. Louis | 11.50 | 11.50 | 11.50 | 10.00 |

October 14, 1954

* Revised. † Tentative

See Inventories at Low Ebb

Producers believe consumer inventories at working level . . . Sheet and strip market is getting hot . . . Detroit orders coming in . . . Bars, manufacturer's wire picking up.

◆ AFTER about a year of anxious waiting, steel producers are now reasonably certain that consumer inventories are down to a working level. And this includes Detroit, center of automotive steel buying which industry sources have been concerned about for some time.

The experience has been enlightening to the mills. They were fooled by the extent of consumer stocks. But now that the nightmare is fading, market analysts can get to work with their slide rules and set up bench marks for executive guidance in case of a future recurrence.

Meanwhile, the sheet and strip market is getting hot. Detroit is snapping out of its lethargy and placing orders. New model production is getting underway at all plants with exception of Ford and two smaller producers. Inventories are down to working levels at all major auto plants.

The trend is up on virtually all products with exception of those due for a seasonal downturn. Latter category probably will include structurals, although dip has not set in as yet.

Bars are doing better, including alloy. Galvanized continues strong, although hot-dip seems to be somewhat shaky. Merchant pipe is picking up. Plates would be better if the railroads were more active. Oil country goods continue strong. Stainless and electrical steel are improved. Electric-weld pipe is improving. Manufacturer's wire is moving up, but merchant wire is showing seasonal weakness in some centers.

Warehouse business is generally reflecting a better tone, although the distributors are still plagued by seconds and rejects in the sheet market.

SHEETS AND STRIP . . . Market is gaining strength. Detroit reports that all auto producers except Ford and two smaller companies are in production on 1955 models; inventories are down to working level at major plants, at least deliveries are extended to six or seven weeks compared with three weeks a month ago. District office of one large producer says its strip and sheet mill is completely loaded. Similar reports from other centers. One mill in Chicago area is offering delivery at 10 weeks, with average about 7 weeks. Stainless and silicon sheets are improving. Continuous galvanized is strong, although hot-dip is beginning to develop weakness. Tinplate is marking time after flurry of deliveries due to price increase effective Oct. 1.

BARS . . . Greater strength on bars including alloy. Significantly Detroit feels that while alloy is improving this product is unlikely to develop the strength of previous years. One reason is that hardened carbon bars have replaced alloy in some applications. Chicago finds the bar market relatively slow. Although farm equipment buying is holding up warehouse purchases continue dull. The East reports a slight pickup in carbon bars, with reinforcing bars holding up well. Reinforcing bars likely to taper off with seasonal decline soon due for the construction industry.

Purchasing Agent's Checklist

MAGNESIUM: Production shutdown may bring shortage p. 87

STEEL: Production reflects upturn in finished demand....p. 89

PRICES: One firm appeals for price reductions p. 90

good sales yearp. 93

WIRE: August slump followed by upturn in Septemberp. 97

PLATES AND STRUCTURALS... Anticipated linepipe activity will strengthen plate market but meanwhile the situation is competitive with delivery a factor in placing of orders. Railroad car builders are still largely out of market. Chicago finds plate deliveries on 2-week basis, sometimes less; backlogs are virtually non-existent; flurry of small orders is sustaining structurals, with anticipated decline not yet apparent. The East reports a slight nudge from bigtonnage construction jobs.

PIPE AND TUBING ... Mechanical tubing, electric-weld and buttweld are making a better showing, although delivery promises are still important. Chicago finds no improvement in linepipe; electric-weld is up and buttweld gaining strength from farm equipment, building, and utilities; seamless is on 4-6 week delivery with volume strong. Merchant pipe is tightening in Cleveland, and oil country is strong but expected to slacken during winter months. Situation similar in Pittsburgh: oil country strong, mechanical tubing improving, buttweld showing greater strength but still competitive on delivery.

WIRE . . . The market is fair to good. Chicago says volume is good and continuing to move up; merchant wire is strong and apparently consumers of manufacturer's wire are moving into the market. In the East, manufacturer's wire is sparking an upturn, and seasonal decline in merchant wire is not extensive enough to depress the market. In Pittsburgh area, manufacturer's wire is showing greater strength, merchant wire apparently headed for seasonal decline.

WAREHOUSE . . . This market is spotty, if not confused. West Coast says distributors are looking for a good October, report steady increase in business. Cleveland says October orders are up markedly over September and August with outlook for November-December considered good. In Chicago, the market is up slightly but the trade is troubled by cut-rate selling of small lots even though material is questionable on analysis and age. In Cleveland, 16-gage hot-rolled sheets are still in short supply; on the other hand galvanized is becoming surplus item with nearing completion of grain-bin program and "dumping" of surpluses by some builders. Reinforcing bar demand still strong. In the East, business is declining slightly due to overestimation of September business which did not materialize to the degree anticipated.

Comparison of Prices

(Effective Oct. 12, 1954)

| Steel prices on this page are the major producing areas; Pi | e average ttsburgh, | of variou Chicago, | Gary, C | otations leveland, |
|---|------------------------|------------------------|------------------------|------------------------|
| Price advances over previous declines appear in Italics. | week are | printed | in Heav | y Type; |
| | Oct. 12 | Oct. 5 | Sept. 14 | Oct. 13 |
| | 1954 | 1954 | 1954 | 1953 |
| Flat-Rolled Steel: (per pound) Hot-rolled sheets Cold-rolled sheets Galvanized sheets (10 ga.) Het-rolled strip Cold-rolled strip Plate Plates wrought iron Stainl's C-R strip (No. 302). | 4.05¢ | 4.05¢ | 4.05¢ | 3.925¢ |
| | 4.95 | 4.95 | 4.95 | 4.775 |
| | 5.45 | 5.45 | 5.45 | 5.275 |
| | 4.05 | 4.05 | 4.05 | 3.925 |
| | 5.82 | 5.82 | 5.82 | 5.575 |
| | 4.225 | 4.225 | 4.237 | 4.10 |
| | 9.30 | 9.30 | 9.30 | 9.30 |
| | 41.50 | 41.50 | 41.50 | 41.50 |
| Tin and Terneplate: (per base bo Tinplate (1.50 lb.) cokes Tinplate, electro (0.50 lb.) Special coated mfg. ternes | \$9.05 7.75 7.85 | \$9.05 7.75 7.85 | \$8.95 7.65 7.75 | \$8.95 7.65 7.75 |
| gars and Shapes: (per pound) Merchant bars Cold-finished bars Alloy bars Structural shapes Stainless bars (No. 302) Wrought iron bars | 4.80¢ | 4.30¢ | 4.312¢ | 4.15¢ |
| | 5.40 | 5.40 | 5.40 | 5.20 |
| | 5.075 | 5.075 | 5.078 | 4.875 |
| | 4.25 | 4.25 | 4.25 | 4.10 |
| | 35.50 | 85.50 | 35.50 | 35.50 |
| | 10.40 | 10.40 | 10.40 | 10.40 |
| Wire: (per pound) Bright wire | 5.75¢ | 8.75¢ | 5.75¢ | 6.525∉ |
| Rails: (per 100 lb.) Heavy rails Light rails | \$4.45 | \$4.45 | \$4.45 | \$4.825 |
| | 5.85 | 5.85 | 5.35 | 5.20 |
| Semifinished Steel: (per net ton) Rerolling billets Slabs, rerolling Forging billets Alloy blooms, billets, slabs | \$64.00 | \$64.00 | \$64.00 | \$62.00 |
| | 64.00 | 64.00 | 64.00 | 62.00 |
| | 78.00 | 78.00 | 78.00 | 75.50 |
| | 86.00 | 86.00 | 86.00 | 82.00 |
| Wire Red and Skelp: (per pound) Wire rods Skelp | 4.675¢ | 4.675¢ | 4.675¢ | 4.525¢ |
| | 3.90 | 8.90 | 3.90 | 3.75 |

| | Oct. 12 1954 | Oct. 5 1954 | Sept. 14 1954 | Oct. 13 1953 |
|--|---|---|--|--|
| Pig Iron: (per gross ton) Foundry, del'd Phila. Foundry, Valley Foundry, Southern, Cin'ti Foundry, Birmingham Foundry, Chicago Basic del'd Philadelphia Basic, Valley furnace Malleable, Chicago Malleable, Valley Ferromanganeset, cents per lb. \$74-76 pct Mn base. | \$61.19 56.50 60.48 52.88 56.50 60.27 56.00 56.50 9.50¢ | \$61.19 56.50 60.43 52.88 56.50 60.27 56.00 56.50 9.50¢ | \$61.19 56.50 60.42 52.88 56.50 60.27 56.00 56.50 56.50 9.50¢ | \$61.19 56.50 60.48 52.88 56.50 60.27 56.50 56.50 10.00¢ |
| Pig Iron Composite: (per gross to | | \$56.59 | \$56.59 | \$56.59 |
| Serap: (per gross ton) | | | | **** |
| No. 1 steel, Pittsburgh | \$34.50 | \$32.50 | \$30.50 | \$35.50 |
| No. 1 steel, Phila. area | 30.00 | 80.00 | 28.50 | 31.50 |
| No. 1 steel, Chicago | 34.50 | 88.50 | 29.50 | 30.00 |
| No. 1 bundles, Detroit | 26.50 | 27.50 | 24.50 | 27.50 |
| Low phos., Youngstown | 35.50 | 85.00 | 32.50 | 86.50 |
| No. 1 mach'y cast, Pittsburgh | | 42.50 | 42.50 | 48.50 |
| No. 1 mach'y cast, Phildel'a. No. 1 mach'y cast, Chicago | 41.00 43.50 | 41.00 42.50 | 40.50 | 41.00 36.50 |
| Steel Scrap Composite: (per gro No. 1 heavy melting scrap | | \$32.00 | \$29.50 | \$32.33 |
| Coke, Connellsville: (per net tor | at oven | 1) | | |
| Furnace coke, prompt Foundry coke, prompt | | \$14.38 16.75 | \$14.38 16.75 | \$14.78 16.75 |
| Nonferrous Metals: (cents per po | ound to le | arge buyer | B) | |
| Copper, electrolytic, Copp | 80.00 | 30.00 | 30.00 | 29.50 |
| Copper, Lake, Copp. | 30.00 | 30.00 | 30.00 | 30.12 |
| Tin, Straits, New York | 98.3707 | 94.625* | 93.75 | 80.25 |
| Zinc, East St. Louis | 11.50 | 11.50 | 11.50 | 10.00 |
| | 14.80 | 14.80* | 14.30 | 13.30 |
| Lead, St. Louis | 14.80 | | | |
| Lead, St. Louis | 22.20 | 22.20 | 22.20 | |
| Lead, St. Louis Aluminum, virgin ingot Nickel, electrolytic | 22.20 63.08 | 22.20 63.08 | 22.20 63.08 | 68.08 |
| Lead, St. Louis Aluminum, virgin ingot Nickel, electrolytic Magnesium, ingot | 22.20 63.08 27.75 | 22.20 63.08 27.75 | 22.20 63.08 27.75 | 21.50 68.08 27.00 |
| Lead, St. Louis Aluminum, virgin ingot Nickel, electrolytic | 22.20 63.08 27.75 28.50 | 22.20 63.08 | 22.20 63.08 | 68.08 |

Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

Pig Iron Composite

4.801é

4.798€

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Phila-delphia, Buffalo, Valley and Birmingham.

Steel Scrap Composite

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Phila-delphia and Chicago.

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges. ←To identify producers, see Key on P. 185→

STAINLESS STEEL

4.684€

Base price cents per lb. f.o.b. mill

| Producing Point | Basic | Fdry. | Mall. | Bess. | Low Phos. |
|--------------------|--------|-------|-------|-------|--------------|
| Bethlehem B3 | 58.00 | 58.50 | 59.00 | 59.50 | |
| Birmingham R3 | 52.38 | 52.88 | | | |
| irmingham W9 | 52.38 | 52.88 | | | |
| Birmingham U4 | 52.38 | 52.88 | 56.50 | | |
| Buffalo R3 | 56.00 | 56.50 | 57.00 | | |
| Buffalo /// | 56.00 | 56.50 | 57.00 | | |
| Buffalo W6 | 56.00 | 56.50 | 57.00 | | |
| Chicago 14 | 56.00 | 56.50 | 56.50 | 57.00 | |
| Cleveland A5 | 56.00 | 56.50 | 56.50 | 57.00 | 61.00 |
| Cleveland R3 | 56.00 | 56.50 | 56.50 | | |
| Daingerfield L3., | 52.50 | 52.50 | 52.50 | | |
| Duluth 14 | 56.00 | 56.50 | 56.50 | 57.00 | |
| Erie 14 | 56.00 | 56.50 | 56.50 | 57.00 | |
| Everett M6 | | 61.00 | 61.50 | | |
| Fentana K1 | 62.00 | 62.50 | 01100 | | |
| Geneva, Utah C7 | 56.00 | 56.50 | | | |
| Granite City G2 | 57.90 | 58.40 | 58.90 | | |
| Hubbard Y/ | | 00140 | 56.50 | | |
| Minnegua C6 | 58.00 | 50.00 | 59.00 | | |
| Monessen P6 | 56.00 | 99.00 | 33.00 | | 446.00 |
| Naville Isl. P4 | 56.00 | 56.50 | 56.50 | | |
| Pittsburgh U1 | 56.00 | 30.30 | 36.36 | 57.00 | ****** |
| Sharpaville S3 | 56.00 | 56.50 | 56.50 | 57.00 | |
| Se. Chicage R3 | 56.00 | 30.30 | 56.50 | 31.00 | ***** |
| | 58.00 | 58.50 | 59.00 | 59.50 | 64.00 |
| Swedeland A2 | 58.00 | 58.50 | | | A |
| Toledo 14 | 56.00 | | 59.00 | 59.50 | ***** |
| Troy, N. Y. R3 | | 56.50 | 56.50 | 57.00 | ****** |
| Youngstown Y/ | 58.00 | 58.50 | 59.00 | 59.50 | 64.00 |
| N. Tenawanda T1 | ****** | | 56.50 | 57.00 | ***** |
| 1 renewands // | | 56.50 | 57.00 | | |

| DIFFERENTIALS: Add 50¢ per ten for each 0.25 pc alicen over hase (1.75 to 2.25 pct except low phos., 1.75 to 2.60 pct) 50¢ per ten for each 0.50 pct manganese over | |
|---|--|
| pci, 32 per ton for 0.5 to 0.75 pct nickel, \$1 for each additional, 0.25 pct nickel. Subtract 38¢ per ton for phosphorus content 0.70 and over. | |

Silvery Iran: Buffalo, HI, \$68.25; Jacksen, JI, GI \$67.00. Add \$1.50 per ton for each 0.50 pet silicon over base (6.01 to 6.50 pet) up to 17 pet. Add \$1 per ton for 6.75 pet or more phosphorus. Add 75½ for each 0.50 pet manganese over 1.0 pet. Bessemer ferrosilicon prices ne \$1 over comparable silvery iren.

| Product | 301 | 302 | 303 | 304 | 316 | 321 | 347 | 416 | 416 | 430 |
|--------------------------------|-------|-------|-------|-------|-----------------|-----------------|-------|-------|-------|-------|
| Ingots, rerolling | 16.25 | 17.25 | 18.75 | 18.25 | 28.00 | 22.75 | 24.50 | 14.00 | | 14.25 |
| Slabs, billets, rerolling | 20.50 | 22.75 | 24.75 | 23.75 | 36,25 | 29.50 | 32.25 | 18.25 | | 18.50 |
| Forg. discs, die blocks, rings | 38.50 | 38.50 | 41.50 | 40.50 | 60.00 | 45.50 | 50.75 | 31.00 | 31.75 | 31.75 |
| Billets, forging | 29.50 | 29.75 | 32.25 | 31.00 | 46.50 | 35.25 | 39.50 | 24.00 | 24.50 | 24.50 |
| Bars, wires, structurals | 35.25 | 35.50 | 38.25 | 37,25 | 55.50 | 42.00 | 46.75 | 28.75 | 29.25 | 29.25 |
| Plates | 37.25 | 37.50 | 39.75 | 39.75 | 58.75 | 45.75 | 51.25 | 30.00 | 30.50 | 30.50 |
| Sheets | 41.25 | 41.50 | 48.75 | 43.75 | 62.75 | 50.50 | 59.25 | 34.25 | 41.25 | 34.75 |
| Strip, hot-rolled | 29.75 | 32.00 | 36.75 | 34.25 | 53.25 | 41.00 | 46.50 | 26.25 | | 27.00 |
| Strip, cold-rolled | 38.25 | 41.50 | 45,50 | 43.75 | 62.75- 63.00 | 50.50- 50.75 | 59.25 | 34.25 | 41.25 | 34.75 |

STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., C11; Brackenridge, Pa., A3; Butler, Pa., A7; McKeesport, Pa., U1; Washington, Pa., W2, 12; Baltimore, E1; Middletown, O., A7; Massillon, O., R3; Gary, U1; Bridgeville, Pa., U2; New Castle, Ind., I2; Ft. Wayne, J4.

"Strip: Midland, Pa., C11; Cleveland, A5; Carnegie, Pa., S9; McKeesport, Pa., F1; Reading, Pa., C2; Washington, Pa., W2; W. Leechburg, Pa., A3; Bridgeville, Pa., U2; Detroit, M2; Canton-Massillon, O., R3; Middletown, O., A7; Harrison, N. J., D3; Youngstown, C5; Sharon, Pa., S1; Butler, Pa., A7; Wallingford, Conn., U3 (.25¢ per lb higher) W1 (.25¢ per lb higher); New Bedford, Mass., R6.

Bar: Baltimore, A7; Duqueane, Pa., U1; Munhall, Pa., U1; Reading, Pa., C2; Titusville, Pa., U2; Washington, Pa., J2; McKeesport, Pa., U1, F1; Bridgeville, Pa., U2; Dunkirk, N. Y., A3; Massillon, O., R3; Chicago, U1; Syracuse, N. Y., C11; Watervliet, N. Y., A3; Waukegan, A5; Canton, O., T5; Ft. Wayne, 14.

Wire: Waukegan, A5; Massillon, O., R3; McKeesport, Pa., F1; Ft. Wayne, J4; Harrison, N. J., D3; Baltimore, A7; Dunkirk, A3; Monessen, P1; Syracuse, C11; Bridgeville, U2.

Structurals: Baltimore, A7; Massillon, O., R3; Chicago, Ill., J4; Watervliet, N. Y., A3; Syracuse, C11

Plates: Brackenridge, Pa., A3; Chicago, U1; Munhall, Pa., U1; Midland, Pa., C11; New Castle, ind., 12; Middletown, A7; Washington, Pa., J2; Cleveland, Massillon, R3; Coatesville, Pa., C15.

Forged discs, die blocks, rings: Pittsburgh, C11; Syracuse, C11; Ferndale, Mich., A3; Washington, Pa J2.

Forging billets: Midland, Pa., CII; Baltimore, A7; Washington, Pa., J2; McKeesport, FI; Massillon Canton, O., R3; Watervliet, A3; Pittsburgh, Chicago, UI; Syracuse, CII.

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ON AGE

Squeeze Hits Copper Users

Fabricators ask Commerce Dept. to divert copper from stockpile . . . But government can't act until strikes are all ended . . . May force cutbacks—By R. L. Hatschek.

• COPPER consumers are getting into a really tight squeeze as a result of strike-shortened supplies. Commerce Secretary Sinclair Weeks was the recipient last week of a telegram asking aid in the form of deferred fourth quarter stockpiling and an embargo on scrap exports.

Sender of the telegram was the Wire and Cable Section of the National Electrical Manufacturers Assn, which indicated that fabricators' inventories are at the lowest point this year and that they are unable to buy copper. Even if the strikes came to a rapid end, pipelines are empty and tightness would continue through the rest of the year.

But the Administration can't do anything until the strikes are all over. Any government action to alleviate the shortage would be labeled a "strike-breaking activity" by the unions. Even the intent to act must be held until labor strife in the copper industry finally comes to an end.

COPPER . . . The strike-caused shortage is getting to the critical stage for some fabricators who report they'll have to cut back operations before the month is over if they can't get more copper. Premiums of up to 7¢ per lb have been paid but still there's no great tonnage at any price. Producers and refiners, meanwhile, are sticking to the 30.00¢ quotation.

Other prices, however are edging

up almost daily. Scrap dealers are paying 26% ¢ to 26% ¢ per lb on No. 1 heavy copper and wire at New York with comparably increased prices on other grades of copper and coppercontaining scrap. Ingot makers and custom smelters are up to a top of 28% ¢ for No. 1.

As a result of the scrap price spiral, ingot makers last week lifted their own prices. Increase in most grades was 1¢ per lb but the 85-5-5-5 group was raised slightly more than this amount.

LEAD . . . Worried lead producers were finally taken off the hook late last week when General Services Administration sent its monthly telegrams asking for stockpile metal. Worry had resulted from recent price increases and the question of whether or not the government wanted lead at 15.00¢ per lb. Another factor was that requests for zinc went out a couple of days before—without any mention of lead.

At presstime, the trade still did not know if GSA would take as much tonnage as previously — especially since producers would like to sell even more.

Despite slight declines there, the London lead price was still more than %¢ per lb above parity with the New York quotation. Earlier, the domestic price jumped almost as soon as London got ¼¢ ahead of New York.

ZINC . . . Smelter stocks of slab zinc tumbled another 17,771 tons last month, bringing the tonnage held to 175,482 at the beginning of October. Biggest factor in the decline was a drop of over 11,700 tons in production, which totaled only 60,092 tons in September as compared with 71,810 tons in August.

Total shipments gained only 1279 tons to hit 77,863 tons for the month. Shipments to domestic consumers improved some 12,400 tons, totaling 64,526 tons, but export was off about 450 and the government took 4600 tons less. Brightest spot is that unfilled orders at 48,818 tons are the highest since first quarter 1953.

With the government again in the market—reportedly for about the same tonnage as last month—strength is definitely apparent. Heavier demand is also indicated from both galvanizers and diseasters.

ALUMINUM . . . Foil again takes the spotlight in Aluminum Assn. statistics for August — shipments established a new record for the sixth time so far this year. And the new high topped the previous record set in July by 14 pct. Tonnage for August was 7014 against the July shipment total of 6132 tons.

August shipments in general were better than the preceding month's and where declines were registered they were slight. Rod and bar gained 21 pct, wire other than electrical conductor rose 24 pct and sheet and plate climbed 6 pct. A 22 pct drop in hard alloy extrusions was almost offset by a gain in soft alloys. ACSR and cable dipped 11 pct.

Following are August aluminum mill product shipments compared with July totals. Figures for all products are in net tons:

| | Aug. | July |
|--------------------------|--------|--------|
| Sheet & Plate, total | 45,665 | 42,771 |
| Non-Heat-Treatable | 35,679 | 33,122 |
| Heat-Treatable | 9,986 | 9,654 |
| Foil | 7.014 | 6,132 |
| Extruded products, total | 11,891 | 12,133 |
| Soft Alloys | 9,690 | 9,296 |
| Hard Alloys | 2,201 | 2,837 |
| Tube, Drawn, total | 1.786 | 1,797 |
| Soft Alloys | 1.510 | 1,034 |
| Hard Alloys | 276 | 263 |
| Rod & Bar, Rolled | 6,457 | 5,317 |
| ACSR & Cable, Bare | 4,541 | 5,106 |
| Wire, Other than Con- | .,, | |
| ductor | 1,861 | 1,504 |
| Forgings | 1,646 | 1,665 |
| Castings, total | 9.926 | 9,098 |
| Sand | 771 | 674 |
| Permanent Mold | 4.962 | 4,587 |
| Die | 4,192 | 3,838 |

MERCURY... While the government-guaranteed price of \$225 per 76-lb flask of mercury has stimulated activity at mines in the U. S. and Mexico, GSA reported last week that it had signed no contracts as yet. GSA's offer is for 125,000 flasks of domestic mercury and 75,000 flasks of Mexican mercury before the end of 1957. But the current market price is \$328 to \$330.

Daily Nonferrous Metal Prices

(Cents per lb except as noted)

| | Oct. 6 | Oct. 7 | Oct. 8 | Oct. 9 | Oct. 11 | Oct. 12 |
|-------------------------|--------|--------|--------|--------|---------|---------|
| Copper, electro, Conn. | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 |
| Copper, Lake, delivered | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 |
| Tin, Straits, New York | 93.25 | 93.375 | 93.625 | **** | 93.375 | 93.375* |
| Zinc, East St. Louis | 11.50 | 11.50 | 11.50 | 11.50 | 11.50 | 11.50 |
| Lead, St. Louis | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 | 14.80 |

Note: Quotations are going prices

(Effective Oct. 12, 1954)

MILL PRODUCTS

line was a

production,

2 tons in vith 71,810

only 1279

the month

consumers

s, totaling s off about k 4600 tons at unfilled the highest

gain in the about the -strength

ier demand galvanizers

again takes um Assn.

shipments or the sixth

d the new record set for August

shipment

neral were

g month's registered bar gained electrical · sheet and pet drop in

lmost offset ACSR and

aluminum

pared with ll products

July 42,771 33,122 9,654 6,132 12,133 9,296 2,837 1,797 1,034 263 5,317 5,106

the govern-\$225 per stimulated U. S. and week that ts as yet. 0 flasks of ,000 flasks the end of ket price is

RON AGE

(Cents per lb, unless otherwise noted)

Aluminum

(Base 30,000 lb. f.o.b. ship. pt., frt. allowed) (Base 30,000 lb. f.o.b. ship. pt., frt. allowed)
Flat Sheet: 0.136-0.249 in., 2S, 3S, 34.9¢;
4S, 37.1¢; 52S, 39.2¢; 24S-0, 24S-0AL, 38.3¢;
75 S-O. 75S-OAL, 45.8¢; 0.08 in., 2S, 3S,
36.1¢; 4S, 38.8¢; 52S, 40.9¢; 24S-O, 24S-OAL,
39.9¢; 75S-O, 75S-OAL, 46.1¢; 0.032 in., 2S,
35, 38.1¢; 4S, 43.0¢; 52S, 45.7¢; 24S-O, 24S-OAL,
48.4; 75S-O, 75S-OAL, 59.8¢.
Plate, ¼-in. and heavier: 2S-F, 3S-F, 33.6¢;
4S-F, 35.7¢; 52S-F, 37.4¢; 61S-O, 36.8¢; 24S-O,
24S-OAL, 38.4¢; 75S, 75S-OAL, 45.8¢.
Extruded Solid Shapes: Shape factors 1 to
5, 37.7¢ to 85.7¢; 12 to 14, 38.4¢ to 31.03;
24 to 26, 41.2¢ to \$1.34; 36 to 38, 48.8¢ to \$1.96.
Rad, Reund: Rolled, 1.064-4.5 in. 2S-F, 42.6¢

Red, Round: Rolled, 1,064-4.5 in. 28-F, 42.6¢ to 39.1¢; cold finished, 0.375-3.499 in., 28-F, 46.9¢ to 41.4¢.

8.rew Machine Stock: Rounds, 11S-T3, \(\frac{1}{2}\)-11/82 in., 62.6¢ to 49.1¢; \(\frac{1}{2}\)-1½ in., 48.9¢ to 45.9¢; 1 9/16-8 in., 44.7¢ to 41.7¢. Base \$000 lb.

Drawn Wire: Coiled, 0.051-0.874 in., 28, 46.1¢ to 34.8¢; 52S, 55.7¢ to 43.4¢; 17S-T4, 63.3¢ to 48.7¢; 61S-T4, 58.5¢ to 48.1¢.

Extruded Tubing: Rounds, 63S-T5, OD 114-2 in., 43.4¢ to 63.8¢; 2-4 in., 39.8¢ to 53.6¢; 4-6 in., 39.8¢ to 48.8¢; 6-9 in., 40.4¢ to 51.1¢. Roofing Sheet: Flat, per sheet, 0.032-in. 42%, x 60-in., \$2.918; x 96-in., \$4.672; x 120-in., \$5.841; x 144-in., \$7.009. Coiled sheet, per lb. 0.019 in. x 28 in., 29.9¢.

Magnesium

(F.o.b. mill, freight allowed)
Sheet & Plate: FS1-O ¼ in., 56¢; 8/16 in.,
57¢; ½ in., 60¢; 0.064 in., 73¢; 0.032 in., 94¢.
Specification grade higher. Base 30,000 lb.

Specification grade higher. Base 30,000 lb.

Extruded Round Red: M, diam ¼ to 0.311 in., 77¢: ½ to ¾ in., 60.5¢: 1¼ to 1.749 in., 66¢: 2½ to 5 in., 51.5¢. Other alloys higher. Base up to ¾ in. diam, 10,000 lb; ¾ to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes: Rectangles: M. In weight per ft. for perimeters less than size indicated: 0.10 to 0.11 lb, 3.5 in., 65.3¢; 0.22 to 0.25 lb, 5.9 in., 62.3¢; 0.50 to 0.59 lb, 8.6 in., 55.7¢; 1.8 to 2.59 lb, 19.5 in., 56.8¢; 4 to 6. b, 28 in., 52¢. Other alloys higher. Base, in weight per ft of shape; Up to ½ lb, 10,000 lb; ½ to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

30,000 lb. Extraded Round Tubing: M, 0.049 to 0.087 in. wall thickness: OD ¼ to 5/16 in., \$1.43: \$/16 to % in., \$1.29: ½ to % in., \$6¢: 1 to 2 in., 70¢: 0.185 to 0.219 in. wall; OD. % to % in., 56¢: 1 to 2 in., 60¢: 3 to 4 in., 59¢. Other alloys higher. Base, OD: Up to 1½ in., 10,000 lb: 1½ to 3 in., 20,000 lb; over 3 in., 30,000 lb.

Titanium

(10,000 lb base, f.o.b. mill)

Commercially pure and alloy grades; Sheets and strip, HR or CR, \$15; Plate, HR, \$12; Wire, rolled and/or drawn, \$11; Bar, HR or forged, \$6; Forgings, \$6.

Nickel, Monel, Inconel

| | prices, j.c | . U. TILLES | |
|----------------|-------------|-------------|---------|
| "A | " Nickel | Monel | Inconel |
| Sheet, CR | 861/2 | 6734 | 931/4 |
| Strip, CR | 921/2 | 70 1/2 | 981/2 |
| Rod, bar | 82 1/2 | 65 1/2 | 88 1/2 |
| Angles, HR | 821/2 | 65 1/2 | 88 1/2 |
| Plate, HR | 841/4 | 66 1/2 | 90 1/2 |
| Seamless tube. | 1151/2 | 100 1/2 | 137 1/2 |
| | | | |

Copper, Brass, Bronze
(Freight included on 500 lb)

| (rought | member | 016 000 | Duramida |
|----------------------------------|-----------|----------|----------|
| Concession | Sheet | Rods | Extruded |
| Copper | 46.41 | | 48.48 |
| Copper, h-r | 48.33 | 44.73 | |
| Copper, drawn. | | 45.98 | |
| Low brass | 44.47 | 44.41 | |
| Yellow brass . | 41.72 | 41.66 | |
| Red brass | 45.44 | | |
| Naval bass | 45.44 | 45.38 | |
| Naval brass | 45.76 | 40.07 | |
| Leaded brass. | | | 39.11 |
| com, bronze | 46.95 | 46.89 | |
| Mang, bronge | 49 48 | 43.62 | 45.18 |
| Phos. bronze | 66 58 | 67.08 | |
| Muntz metal | 43.96 | 39.77 | 41.02 |
| Vi cilvon 10 | 10.00 | 03.11 | |
| Ni silver, 10 pci | 00.36 | | 62.63 |
| Beryllium copp 2000 lb, f.o.b | er, CR, 1 | 1.9% Be, | Base |
| Strip | | | \$1.6 |
| Rod hom | | | 4.0 |

PRIMARY METALS

| - WILLIAMS |
|--|
| (Cents per lb, unless otherwise noted) Aluminum ingot, 99+%, 10,000 lb. |
| freight allowed 22.20 |
| Aluminum pig 20.50 |
| Antimony, American, Laredo, Tex. 28.50 |
| Beryllium copper, per lb conta'd Be. \$40.00 |
| Beryllium aluminum 5% Be, Dollars |
| per lb contained Be |
| Bismuth, ton lots \$2.25 |
| Cadmium, del'd \$1.70 |
| Cobalt, 97-99% (per lb) \$2.60 to \$2.67 |
| Copper, electro, Conn. Valley 30.00 |
| Copper, Lake, delivered 30.00 |
| Gold, U. S. Treas., per troy oz \$35.00 |
| Indium, 99.8%, dollars per troy oz \$2.25 |
| Iridium, dollars per troy og \$165 to \$175 |
| Lead, St. Louis |
| Lead, New York 15.00 |
| Magnesium, 99.8+%, f.o.b. Freeport, |
| Tex., 10,000 lb, pig |
| ingot 27.75 |
| ingot |
| |
| Mercury, dollars per 76-lb flash, f.o.b. New York |
| Nickel electro, f.o.b. N. Y. warehouse 63.08 |
| |
| Creek, Ont., contained nickel 56.25 Palladium, dollars per troy oz \$21.00 |
| Palladium dollars per trov or \$91.00 |
| Platinum, dollars per troy oz\$84 to \$87 |
| Silver, New York, cents per troy oz. 85.25 |
| Tin, New York |
| Titanium, sponge, grade A-1 \$4.72 |
| Zinc, East St. Louis |
| Zinc New York |
| Zinc, New York |
| amountain copper, so pet wo.av |

REMELTED METALS

| | ents | | | | 0 | Į. | b | - | Ž (| el | i | V | e | r | 20 | l, | C | a | 9 | le | 26 | 30 | 18 |) |
|--------|-------|----|----|---|---|----|---|---|-----|----|---|---|---|---|----|----|---|---|---|----|----|----|----|-------|
| 85-5-5 | | | | | | | | | | | | | | | | | | | | | | | | 00 50 |
| No. | | | | | | | | | | ٠ | | | | | | | | | | | | | | 29.50 |
| No. | | | 4 | | | | | | | | ٠ | | | | | | | | | | | | | 29,00 |
| | 123 | | | | | | | | 0 | | | | | 0 | 0 | | 0 | | | 2 | 0 | | | 28.50 |
| 80-10- | 10 in | g | 0 | 3 | | | | | | | | | | | | | | | | | | | | |
| No. | 305 | _ | | | | | | | | | | | | | | | | | | | | | | 34.00 |
| No. | | | | | | Ī | | | | | | | | | | | | | | | | | | 31.75 |
| 88-10- | 2 ing | 0 | t. | | | | | | | | | | | | | | | | | | | | | |
| No. | 210 | | | | | | D | | | | | | | | | | | | | | | | | 42.75 |
| No. | 215 | | | | | | | | | | | | | | | | | | | | | | | 39.25 |
| No. | 245 | | | | | | | | | | | | | | | | | | | | | | | 34.75 |
| Yellov | ing | oi | | | | | | | | | | | | | | | | | | | | | | |
| | 405 | | | | | | | | | | | ı | | | | | | | | | | | | 25.23 |
| Manga | | | | | | | | | - | | | - | | • | | r | | | | | | | - | |
| | | | | | | | | | | | | | | | | | | | | | | | | 27.78 |

Aluminum Ingot

| | (Cents per ll | | | | and | over) | |
|---|----------------|----------|---------|-----|--------|----------|------|
| - | 5-5 aluminun | n-silico | n alloy | 3 | | | |
| | 0.30 copper, | max. | | | .23.5 | 0 - 24.0 | 0 |
| | 0.60 copper, | max. | | | . 23.2 | 5 - 23.7 | 5 |
| 1 | Piston alloys | (No. 1 | 22 type | 6). | .20.7 | 5 - 22.0 | 0 |
| 1 | No. 12 alum. | (No. 2 | grade |) | .20.5 | 0 - 21.0 | 0 |
| | 108 alloy | | | | .21.2 | 5-21.7 | 5 |
| | 195 alloy | | | | . 22.0 | 0 - 22.5 | -0 |
| | 13 alloy (0.60 | coppe | r max. |) | . 23.2 | 5-23.7 | 5 |
| | ASX-679 | | | | . 21.2 | 5-21.7 | 6.73 |
| | | | | | | | |

Steel deoxidizing aluminum, notch-bar granulated or shot

| | 3.000 | | - | _ | 7 | | | - | | | |
|-------|------------|-----|-----|---|---|---|---|---|-------|---|----------------|
| Grade | 1-96-971/2 | % | | | 0 | 0 | 0 | | | | 21.00-22.00 |
| Grade | 2-92-95% | | 0 0 | | 0 | | 0 | 0 | 0 | | .20.00-21.00 |
| Grade | 3-90-92% | 0.0 | | | ٥ | 0 | | | 0 | 0 | .19.00-20.00 |
| Grade | 4-85-90% | | | | | | | | | | .18.00 - 19.00 |

ELECTROPLATING SUPPLIES

Anodes

| (Cents per lb, freight allowed, 5000 lb | b lots) |
|---|---------|
| Cast, oval, 15 in. or longer | 42.64 |
| Electrodeposited | 41.88 |
| Flat rolled | 45.04 |
| Cast, oval, 15 in. or longer | 43.515 |
| Zinc, flat cast | 20.25 |
| Nickel, 99 pct plus | 18.50 |
| Cast | 84.00 |
| Cadmium | \$1.70 |
| Silver 999 fine, rolled, 100 oz. lots per troy oz., f.o.b. Bridgeport, | 0.414 |
| Conn | 9436 |
| Chemicals | |
| (Cents per lb, f.o.b. shipping poir | 63 00 |

| Count. | /- |
|---|--|
| Chemicals | |
| (Cents per lb, f.o.b. shipping point Copper cyanide, 100 lb drum Copper sulphate, 99.5 crystals, bbl. Nickel salts, single or double, 4-100 lb bags, frt. allowed Nickel chloride, 375 lb drum Silver cyanide, 100 oz. lots, per oz. Sodium cyanide, 96 pct domestic | 63.00 12.85 30.00 38.00 75 ½ |
| Zinc cyanide, 100 lb drum | 19.25 54.30 |

SCRAP METALS Brass Mill Scrap

| (Ce | nts per | po | un 2 | o. | 00 | dd 1¢ per 0 lb and | over) |
|--------|-----------|-----|---------|-----|-----|-----------------------|----------|
| 0.000 | ,,,,,,,,, | 0) | _ | - 0 | | Heavy | Turnings |
| Copper | | | | | 0.0 | 26 | 25 1/4 |
| Yellow | brass | | | | | 19% | 18 |
| Red br | | | | | | 23 | 22 14 |
| Comm. | | | | | | 23 76 | 23 % |
| | bronze | | | | | 18% | 17% |
| Yellow | brass | rod | . 6 | en | ds | 19 1/2 | **** |
| | Custo | m | Sr | ne | 11 | ers' Scre | ip q |

| (Cents | per | pound to 1 | co | 37 | 10 | 06 | 30 | 1 | ı | oti | В, | delivered |
|--------|--------|---------------|-------|----|----|----|----|---|-----|-----|----|-----------|
| No. 1 | | | | | | | | | | | | 38 1/2 |
| No. 2 | | | | | | | | | | | | 27 |
| Light | copper | | 0 + 0 | 0 | | 0 | 0 | 0 | 9 1 | | - | 25 1/4 |
| *Refin | ery bi | er cor | te | n | t. | | ٠ | | 0 0 | | Z | -25 1/2 |

| | ing | of M | ak | • | m | 8" | 2 | C | r | ap | |
|-------|--------|------|-----|----|----|----|----|---|---|------|-----------|
| (Cent | per p | ound | CO | 13 | le | 00 | d | | u | ita, | delivered |
| | | to r | est | 91 | e | ry | 1) | | | | |
| No. 1 | copper | wire | | | | | | | 0 | . 2 | 8 -28 1/2 |
| | | wire | | | | | | 0 | | . 20 | 6 1/2-27 |
| Timbe | COMMON | | | | | | | | | 98.1 | 5 2516 |

| No. 1 copper wire | 28 -28 |
|----------------------|-------------|
| No. 2 copper wire | 26 1/2 - 27 |
| Light copper | 25 25 |
| No. 1 composition | 22 % 23 |
| No. 1 comp. turnings | |
| Rolled brass | 18 -18 |
| Brass pipe | 1814-19 |
| Radiators | 18 % 19 |
| Alum | inum |
| Mixed old cast | 14 -14 |
| Mixed new clips | 14%-14 |
| Miyad turnings dry | 144 -14 |
| Pots and pans | 1414 |
| | |
| | |

Dealers' Scrap (Dealers' buying price, f.o.b. in cents per pound) New York

Copper and Brass Brass pipe New soft brass clippings Brass rod ends No. 1 brass rod turnings 15

Aluminum 8 1/2 11 14 1/2 11 - 7 1/2 1214 Zinc

| Zinc routings Old die cast scrap | 316 — 350 314 — 316 |
|----------------------------------|------------------------|
| Nickel and Monel | |
| Pure nickel clippings | 5.5 |
| Clean nickel turnings | 3.8 |
| Nickel anodes | 55 |
| Nickel rod ends | 55 |
| New Monel clippings | 22 - 23 |
| Clean Monel turnings | 15 - 16 |
| Old sheet Monel | 20 -21 |
| | |

New zinc clippings

Nickel silver clippings, mixed. Nickel silver turnings, mixed. Lead

| | | | | | | A | | | | | | | | | | | | | | | |
|------------|---|---|----|----|---|----|---|---|---|----|---|---|----|---|---|----|---|---|---|---|--------|
| Segregated | | 8 | 10 | ıl | i | ãs | 3 | | | | 0 | | 9 | 0 | 0 | | 0 | e | 1 | 8 | 79-13 |
| Castings . | 0 | 0 | | | a | | 0 | 0 | 0 | 0 | | | 0 | | 0 | 0 | 0 | 0 | 1 | 7 | 1/2-18 |
| | | | | | A | is | | | | II | | - | 10 | | | 14 | e | | | | |

| E.C. | 60 |
|----------------------------|---------|
| No. 1 pewter 55 | |
| No. 1 auto babbitt | 4.0 |
| Mixed common babbitt | 1.4 |
| Solder joints | 173 |
| Siphon tops | 40 |
| Small foundry type 16 | 1/2-16 |
| Monotype 10 | 194 |
| Lino. and stereotype 14 | 1/2-143 |
| Electrotype | 14-127 |
| Hand picked type shells 10 | 1/2-103 |
| Lino, and stereo, dross | 4.4 |
| Electro dross | |

New Mill Buying Ups Prices

Openhearth grades rise in most major consuming districts
... Detroit shows only decline ... Composite rises \$1 to \$33.00 ...
New high for year ... See higher order volume

◆ NEW MILL orders boosted scrap prices in most major consuming districts this week. The Iron Age Heavy Melting Steel Scrap Composite Price rose \$1 to \$33.00 per gross ton, a new high for the year. Strength was particularly apparent in Pittsburgh, Youngstown, Cincinnati, Chicago and the South.

Contrary to the overall trend, openhearth and blast furnace grades declined \$1 at Detroit. But prices had risen faster there than in most other areas, and brokers insist the market is still strong.

Predictions of further market rises were common in other districts. Since there is good reason to believe that the steel industry will be operating at better than 75 pct of rated capacity within the next few weeks, a higher volume of scrap orders seems in the cards. Big question, of course, is whether forthcoming orders can be placed at about current quotations.

Exports continue to be a major factor in the South and East. Domestic mills have been forced to place new orders at higher prices in several instances to secure material.

Pittsburgh . . . No. 1 heavy melting steel advanced \$2 per ton this week to \$35, top. The advance is predicated on buying by an independent mill, broker buying at higher prices to fill a recent \$33 order, the steady improvement in demand for finished steel, and greater strength in adjacent markets. The independent mill is known to have paid \$35 delivered on No. 1 heavy melting. Latest railroad list called for a price of nearly \$35 on track for No. 1 railroad heavy melting. Another list scheduled for this week was expected to bring a comparable price. Turnings market is growing stronger. Cast grades reflect poor foundry business.

Chicago . . . A major mill sale last week confirmed advances made the week previous by smaller mills, and added further heat to an already difficult broker buying market. Broker buying prices have continued to advance, sparked largely by reportedly small scrap supplies and an advancing operating rate, but general opinion holds that there is insufficient shortness of supply to account entirely for the rapid price advance of the past 2 weeks, save in rail grades. Nonetheless, broker buying at last week's prices will not draw out large tonnages and a determined effort to hold consumer prices last week met with no success.

Philadelphia . . . Market here remains strong but with no further rise in openhearth or low phos grades as yet. Export demand is characterized as "thriving." New railroad lists this week boosted prices about \$1 over last month's. Stepped-up buying by smaller foundries in the district has widened the spread in cupola cast to \$34 to \$36.

New York... New buying by local mills raised steelmaking grades \$1 this week as domestic consumers moved to meet export quotations. Some export scrap is reportedly moving at higher prices, but dealers and brokers stress that these shipments are not representative, but rather reflect efforts of some traders to cover commitments in a tightening market, also some quantity premiums.

Detroit . . . The major consumer dropped prices on primary openhearth and blast furnace grades \$1 and stayed out of the market on No. 2 bundles and heavy melting. This resulted in price drops of from \$1 to \$2 on all except cast, which remained firm. The trade insists the market is still comparatively strong, but Detroit prices had climbed relatively higher than other markets. The drop could be the reflection of an equalizing factor creeping in.

Cleveland . . . Local market remained steady except in rails and crops but Youngstown area went up \$1 and was very strong at \$35 for top grades. In Cleveland area threat of blast furnace use remains major depresant and prices have about leveled off for the present rate of operations. In the Youngstown area No. 1 heavy melting went to \$35 and was still somewhat short of the normal differential with Cleveland. Rails continued strong throughout the area with lists closing last week at about \$1 per ton higher.

Birmingham . . . Activities of the scrap market in the district this week has emphasized the bullish tone of the last 2 or 3 weeks, with an increase of \$2.50 per ton in heavy melting scrap and most other grades advancing smaller amounts. Export quotations also were up \$2 in the Carolinas in an effort to pry more scrap out of dealers' yards.

St. Louis . . . An East Side mill has increased its price for No. 1 heavy melting \$2 a ton. Otherwise the list remained unchanged. There has been some improvement in receipts but the full effect of the recent increases has not been felt yet.

Cincinnati . . . Area dealers are barging scrap past windows of steel mill purchasing agents into Eastern Cleveland and Pittsburgh at about \$4 per ton barge freight. Local market is firm at \$1 higher last week, second consecutive rise, but dealers hope out of area sales may add more strength.

Buffalo . . . Buying by the area's two top mill consumers at \$4 higher than their last prices brought them up to the level of others and firmly established prices for No. 1 grades. No. 2 steelmaking grades rose \$2 per ton while blast furnace items were up 50¢. A rise in the ingot rate is the chief factor. Canadian buying of cast grades pushed those prices up \$1.

Boston . . . Generally better sentiments and improved scrap movement highlight the market this week. Several prices edged upward but a sale of 3-ft and under electric furnace scrap at Providence did not lift Boston prices despite the \$24 to \$25 price it carried. Business was filled locally.

West Coast . . . Los Angeles area movement mostly in No. 2 heavy melling and No. 2 bundles with two mills in the market. Prices are unchanged. San Francisco reports a cargo heading for Europe, first in a long time. narket rerails and a went up 35 for top threat of ns major ve about it rate of town area to \$35 and rt of the Cleveland. ughout the st week at

ties of the t this week tone of the n increase y melting rades ads. Export \$2 in the pry more

de mill has o. 1 heavy ise the list e has been pts but the creases has

lealers are ws of steel to Eastern at about \$4 l market is ek, second s hope out e strength.

the area's \$4 higher ught them and firmly 1 grades. rose \$2 per ns were up rate is the ing of cast up \$1.

etter sentimovement week. Sevbut a sale ie furnace lift Boston 25 price it d locally.

rgeles area neavy meltn two mills unchanged argo headlong time.

RON AGE



every requirement LURIA BROTHERS AND COMPANY, INC.

CONSULT OUR NEAREST OFFICE FOR THE PURCHASE AND SALE OF SCRAP

MAIN OFFICE LINCOLN-LIBERTY BLDG. Philadelphia 7, Penna.

PLANTS

LEBANON, PENNA. DETROIT (ECORSE), READING, PENNA. MICHIGAN

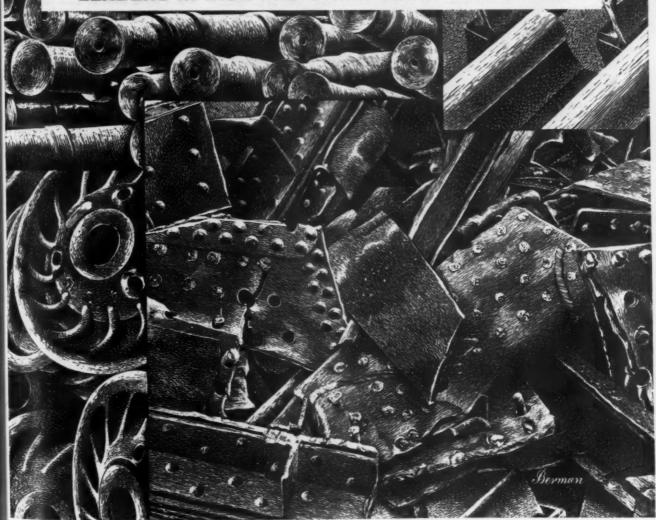
MODENA, PENNA. PITTSBURGH, PENNA. ERIE, PENNA.

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Exports-Imports-Livingston & Southard, Inc., 99 Park Avenue, New York, N. Y. Cable Address: FORENTRACO.

LEADERS IN IRON AND STEEL SCRAP SINCE 1889



Scrap Prices

(Effective Oct. 12, 1954)

Pittsburgh

| No. 1 hvy. melting \$ No. 2 hvy. melting No. 1 bundles No. 2 bundles | 34.00 to 31.00 to 34.00 to 28.00 to | \$35.00 32.00 35.00 29.00 |
|--|--|------------------------------------|
| Machine shop turn. Mixed bor, and ms. turns. Shoveling turnings Cast iron borings | 18.00 to 18.00 to 22.00 to 22.00 to | 19.00 19.00 23.00 23.00 |
| Low phos. punch'gs, plate Heavy turnings | 36.00 to 31.00 to | 37.00 32.00 |
| No. 1 RR. hvy. melting. Scrap rails, random lgth. Rails 2 ft and under. RR. steel wheels RR. spring steel RR. couplers and knuckles | 35.00 to 38.00 to 44.00 to 36.00 to 36.00 to 36.00 to | 37.00 |
| No. 1 machinery cast Cupola cast Heavy breakable cast | 42.00 to 37.00 to 31.00 to | 38.00 |

Chicago

| - | |
|---|---|
| No. 1 hvy. melting \$34.00 to \$ No. 2 hvy. melting 32.00 to No. 1 factory bundles 35.00 to No. 1 dealers' bundles 34.00 to No. 2 dealers' bundles 24.50 to | 35.00 33.00 36.00 35.00 25.50 |
| Machine shop turn | $\begin{array}{c} 19.00 \\ 21.00 \\ 21.00 \\ 21.00 \end{array}$ |
| Low phos. forge crops 39.00 to Low phos. punch'gs, plate 36.00 to Low phos. 3 ft and under 35.00 to No. 1 RR. hvy. melting 36.00 to | 40.00 37.00 36.00 |
| No. 1 RR. hvy. melting . 36,00 to Scrap rails, random lgth 43,00 to Rerolling rails 53,00 to Rails 2 ft and under . 51,00 to Locomotive tires, cut . 36,00 to | 37.00 44.00 54.00 52.00 37.00 |
| Cut bolsters & side frames 38.00 to Angles and splice bars 42.00 to RR. steel car axles 48.00 to RR. couplers and knuckles 37.00 to | 39.00 44.00 49.00 |
| No. 1 machinery cast 43.00 to Cupola cast | 38.00 44.00 41.00 34.00 |
| Cast iron brake shoes 34.00 to Cast iron car wheels 35.00 to Malleable 43.00 to Stove plate 32.00 to | 35.00 36.00 45.00 34.00 |
| | |

Philadelphia Area

| i illiadelpilla / | MIEU | |
|---|--|--|
| No. 1 hvy. melting 8 No. 2 hvy. melting No. 1 bundles No. 2 bundles | 27.50 to 29.50 to 24.00 to | 30.50 28.50 30.50 25.00 |
| Machine shop turn. Mixed bor. short turn. Cast iron borings Shoveling turnings Clean cast chem. borings. | 16.50 to 18.00 to 18.00 to 19.00 to 24.00 to | 17.00 19.00 19.00 20.00 25.00 |
| Low phos. 5 ft and under Low phos. 2 ft and under Low phos. punch'gs Elec. furnace bundles Heavy turnings RR. steel wheels RR. spring steel Rails 18 in. and under | 32.00 to 33.00 to 33.00 to 31.00 to 27.00 to 33.00 to 44.00 to | 33.00 34.00 34.00 32.00 28.00 34.00 34.00 45.00 |
| Cupola cast. Heavy breakable cast. Cast iron carwheels Malleable Unstripped motor blocks. No. I machinery cast. Charging box cast. | 34.00 to 35.00 to 38.00 to 36.00 to 27.00 to 40.00 to 36.00 to | 36.00 36.00 39.00 37.00 28.00 42.00 37.00 |

Cleveland

| No. 1 hvy, melting | 31.00 25.50 | to | 30.00 |
|--|---|----------------|--|
| No. 1 busheling Machine shop turn. Mixed bor, and turn. Shoveling turnings | 31.00 13.00 19.00 19.00 | to to to | 33.00 14.00 20.00 20.00 |
| Cast fron borings | 38.00 31.00 32.00 | to to | 39.00 33.00 34.00 |
| No. 1 RR. heavy melting Rails 3 ft and under Rails 18 in. and under Railroad grate bars Rails 3 ft and under | 33.00 46.00 47.00 27.00 47.00 | to to to | \$5.00 47.00 48.00 28.00 48.00 |
| Rails 18 in. and under No. 1 machinery cast Stove plate | 48.00 44.00 36.00 44.00 | to | 49.00 45.00 37.00 45.00 |

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Youngstown

| No. 1 hvy, melting | \$35.00 |
|------------------------------|---------|
| No. 2 hvy. melting\$29.00 to | 30.00 |
| No. 1 bundles 34.50 to | |
| No. 2 bundles 25.00 to | 26.00 |
| Machine shop turn 14.00 to | 15.00 |
| Shoveling turnings 21.00 to | 22.00 |
| Cast iron borings 21.00 to | |
| Low phos. plate 35.00 to | 36.00 |

Buffalo .

| No. 1 hvy. melting No. 2 hvy. melting No. 1 busheling No. 1 bundles No. 2 bundles | 30.00 to 26.50 to 30.00 to 30.00 to 24.50 to | 27.50 31.00 |
|--|--|---|
| Machine shop turn Mixed bor, and turn Shoveling turnings Cast iron borings | 16.50 to 19.00 to 19.50 to 19.00 to | $\begin{array}{c} 17.50 \\ 20.00 \\ 20.50 \\ 20.00 \end{array}$ |
| Low phos. plate | 33.00 to 35.00 to 42.00 to 36.00 to | 37.00 |
| RR. spring steel RR. couplers and knuckles No. 1 machinery cast No. 1 cupola cast | 36.00 to 36.00 to 41.00 to 37.00 to | 37.00 37.00 42.00 38.00 |

Detroit

| Brokers buying prices per gro | ss ton, on cars: |
|---|--|
| No. 1 hvy. melting\$ No. 2 hvy. melting | 25.00 to \$26.00 |
| Machine shop turn Mixed bor. and turn. Shoveling turnings Cast iron borings Low phos. punch'gs, plate | 11.00 to 12.00 14.00 to 15.00 14.00 to 15.00 14.00 to 15.00 25.00 to 26.00 |
| No. 1 cupola cast | 34.00 25.00 30.00 38.00 |

St. Louis

| No. 1 hvy. melting No. 2 hvy. melting No. 1 bundles No. 2 bundles Machine shop turn. Cast iron borings Shoveling turnings | 28.00 30.00 23.50 15.50 15.50 17.00 | to to to to | 29.00 31.00 24.50 16.50 16.50 |
|---|---|----------------------|---|
| No. 1 RR. hvy. melting Rails, random lengths Rails, 18 in. and under Locomotive tires, uncut Angles and splice bars Std. steel car axles RR. spring steel | 33.50 36.00 44.00 32.00 34.00 35.00 32.00 | to to to to | 34.50 37.00 45.00 33.00 36.00 33.00 |
| Cupola cast Hvy. breakable cast. Cast iron brake shoes Stove plate Cast iron car wheels Malleable Unstripped motor blocks. | 43.00 32.00 26.00 38.50 32.00 35.00 32.00 | to to to to | 44.00 33.00 27.00 39.50 33.00 36.00 33.00 |

New York

| Brokers buying prices per gross to | n, | on cars | 2 |
|---|----|---------|---|
| No. 1 hvy. melting \$25.00 | | | |
| No. 2 hvy. melting 23.00 No. 2 bundles 19.00 | | | |
| Machine shop turn 7.00 Mixed bor. and turn 9.00 | to | 8.00 | |
| | to | 12.50 | |
| No. 1 machinery cast 35.00 Mixed yard cast 29.00 | | 36.00 | |
| Charging box cast 29.00 | | | |
| Unstripped motor blocks 22.00 | | 23.00 | |

Birmingham

| No. 1 hvy, melting No. 2 hvy, melting No. 1 bundles No. 2 bundles No. 1 busheling | 26.00 to 24.00 to 23.00 to 19.00 to 23.00 to | 27.00 25.00 24.00 20.00 24.00 |
|--|--|---|
| Machine shop turn Shoveling turnings Cast iron borings | 16.00 to 16.00 to 16.00 to | 16.00 17.00 17.00 |
| Electric furnace bundles Bar crops and plate Structural and plate, 2 ft | 29.00 to 32.00 to 32.00 to | 30.60 33.00 33.00 |
| No. 1 RR. hvy. melting Scrap rails, random lgth Rails, 18 in. and under Angles & splice bars | 30.50 to 36.00 to 40.00 to 38.00 to 40.00 to | 31.50 37.00 41.00 39.00 41.00 |
| No. 1 cupola cast Stove plate Charging box cast Cast iron car wheels | 45.00 to 42.00 to 19.00 to 83.00 to | 46.00 43.00 20.00 34.00 |
| Unstripped motor blocks. Mashed tin cans | 35.00 to 15.00 to | 36.00 |

Boston

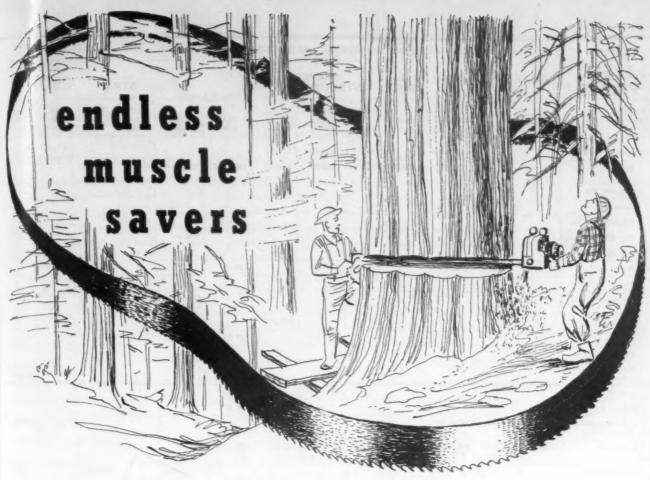
| Brokers buying prices per gre | es ten, o | m cars |
|-------------------------------|-----------|---------|
| No. 1 hvy. melting | 20.00 to | \$21.00 |
| No. 2 hvy, melting | 16.50 to | 17.50 |
| No. 1 bundles | 20.00 to | 21.00 |
| No. 2 bundles | 15.00 to | 15.75 |
| No. 1 busheling | 20.00 to | 21.00 |
| Elec. furnace, 3 ft & under | 20.00 to | 21.00 |
| Machine shop turn | 6.00 to | 7.00 |
| Mixed bor, and short turn. | 9.00 to | 10.00 |
| Shoveling turnings | | |
| Clean cast chem. borings. | 13.00 to | 14.00 |
| No. 1 machinery cast | 29.00 to | 30.00 |
| Mixed cupola cast | 26.00 to | 27.00 |
| Heavy breakable cast | 25.00 to | 26.00 |
| Stove plate | 25.00 to | 36.00 |
| Unstripped motor blocks. | 18.00 to | 19.0 |
| | | |

| Cincinnati |
|---|
| Brokers buying prices per gross ten, en es |
| No. 1 hvy. melting \$27.50 to \$28. No. 2 hvy. melting 24.50 to 25. No. 1 bundles 27.50 to 28. No. 2 bundles 21.00 to 22. |
| Machine shop turn. 14.50 to 15. Mixed bor, and turn. 14.50 to 15. Shoveling turnings 14.50 to 15. Cast iron borings 14.60 to 15. |
| Low phos., 18 in. & under 34.00 to 35. Rails, random lengths 38.00 to 39. Rails, 18 in. and under 46.00 to 47. |
| No. 1 cupola cast 39.00 to 40. Hvy. breakable cast 35.00 to 36. Drop broken cast 44.00 to 45. |
| San Francisco |

| | 20.00 |
|--|----------------|
| | 16.00 |
| | 19.00 |
| No. 2 bundles | 16.00 |
| No. 3 bundles | 12.00 |
| Machine shop turn | 5.00 |
| Cast iron borings | 5.00 |
| No. 1 RR. hvy. melting No. 1 cupola cast \$43.00 to | 20.00 46.00 |
| Las Angeles | |

| Los Angeles | |
|---|---------------------------|
| No. 1 hvy. melting | 13.00 |
| Machine shop turn 7.00 to Cast iron borings 7.00 to | 9.00 |
| Elec. fur. 1 ft and under | 25.00 |
| No. 1 RR. hvy. melting No. 1 cupola cast 40.00 to | |
| Seattle | |
| No. 1 hvy. melting No. 2 hvy. melting No. 1 bundles | \$25.00 21.00 20.00 |
| No. 2 bundles | 13.00 |
| No. 1 cupola cast Mixed yard cast | 35.00 |
| Hamilton, Ont. | |
| No. 1 have modified | 8 22 00 |

| No. 1 | hvy. | melt | ing | 2 | | | | 0 | | | | | | | \$22. |
|--------|-------|--------|-----|---|---|---|---|---|-----|---|---|----|---|----|-------|
| No. 2 | hvy. | melt | ing | 7 | | 9 | | | | | | 0 | | | 19. |
| No. 1 | bund | les | | 0 | | 0 | 0 | | | | | | | | 22. |
| | bund | | | | | | | | | | 0 | 0 | 0 | | 19. |
| | stee | | | | | | | | | | | 0 | | | 16. |
| | lings | | | | | | | | | | 0 | 0 | 0 | | |
| | new | | | | | | | | | | | | | 1 | 20. |
| | new | | | | | | | | | | 0 | 0 | 0 | | 16. |
| hort | steel | tur | nin | g | 8 | | | | 0 | | 0 | 0 | 0 | | 12. |
| | bor. | | | | | | | | | | | 0 | | | 12. |
| Rails, | reme | elting | E . | | | 0 | | 9 | 0 | | | | | | 31. |
| tae' | Berap | | | | | | | | . 1 | 4 | 2 | .0 | | to | 48. |



In London, 145 years ago, William Newberry patented the first endless band saw. But to Perine, in Paris, is due credit for improvements, devised some forty years later, which made general use of the band saw possible. These improvements consisted mainly in securing a satisfactory joint, and steel of sufficient pliability.

Now, endless demands on steel—for musclesavers, time-savers, and cost-savers—are being made by industry, agriculture, transportation, construction and the military. To meet these requirements, an endless supply of scrap must be maintained.

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October 14, 1954

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ON AGE

\$25.00 21.00 20.00 17.00 13.00

| 4 | STEEL | BILLE | TS, BLO | OMS, | PIL- | | SHAPES | | | | OTD | ID | | |
|--------|--|--------------------------------|------------------------------|---------------------|----------------|--------------------|-------------------------|---------------------------|-------------------|--------------------------|------------------------------|------------------------------|-------------------------|--------------------------|
| Ì | PRICES | | SLABS | | ING | SIK | UCTUR | ALS | | | STR | IP | | |
| 0 | (Effective Oct. 12, 1954) | Carbon Rerolling Net Ton | Carbon Forging Net Ton | Alloy Net Ton | Sheet Steel | Carbon | Hi Str. Low Alloy | Carbon Wide- Flange | Hot- rolled | Cold- rolled | Hi Str. H.R. Low Alloy | Hi Str. C.R. Low Alloy | Alloy Hot- rolled | Alloy Cold- rolled |
| | Bethlehem, Pa. | | | \$86.00 B3 | | 4.30 B3 | 6.45 B3 | 4.30 B3 | | | | | | |
| | Buffalo, N. Y. | \$64.00 B3 | \$78.00 B3, R3 | \$86.00 B3, R3 | 5.075 B3 | 4.30 B3 | 6.45 B3 | 4.30 B3 | 4.05 B3,R3 | 5.75 B3,R7 | 6.15 <i>B3</i> | 8.425 B3 | | |
| | Clayment, Del. | + | | | | - | | | | | | | - | - |
| | Coatesville, Pa. | | | | | | | | | | | | | |
| 1 | Conshehecken, Pa. | | | | | | | | 4.175 A2 | | 6.15 .42 | | | |
| | New Bedford, Mass. | | | | | | | | | 6.20 R6 | | | | 7 |
| ST | Harrison, N. J. | | | | | | | | | | | | , | |
| EAST | Johnstown, Pa. | \$64.00 B3 | \$78.00 B3 | \$86.00 B3 | | 4.30 B3 | 6.45 B3 | | 4.05 B3 | | | | | |
| | Fairless, Pa. | | | | | | | | | | <i></i> | | | |
| | New Haven, Conn. | | | | | | | - | | 6.20 D/ | | | | |
| | Phoenixville, Pa. | | | - | | 3.95 P2 | | 3.95 P2 | | 6.50 A5 | | | | - |
| | Sparrows Pt., Md. | | | | | 2.55 1 2 | | 3.93 72 | 4.05 B3 | 5.75 B3 | 6.15 B3 | 8.425 B3 | | |
| | Wallingford, Conn. | | - | | | | | - | 4.03 (5) | 6.20 W/ | 4.10 0) | 0.420 05 | | |
| 1 | Worcester, Mass. | | | | | | - | | | 6.30 N7 | | | | 12.75 |
| | Pawtucket, R. I. | | | | | | | | | 6.60 A5 | | | 17.1 | 12.80 |
| | Alton, III. | | | | | | | | 4.225 L1 | | | | | |
| | Ashland, Ky. | 1 | | | | | | | 4.05 A7 | | | | | |
| | Canton-Massillon, Dever, Ohio | | \$88.00 R3 | \$86.00 R3, T5 | | | | 4 | | 100 | | | | 12.45 (|
| | Chicago, III. | \$64.00 U/ | \$78.00 R3, | \$86.00 U1, | 5.075 UI | 4.25 UI, | 6.40 UI, | 4.25 UI | 4.85 A1,N4 | 5.85 AI | | | | |
| | Cleveland, Ohio | | UI,W8 | W8,R3 | | W8 | YI | - | IV8 | 5.75 A5, J3 | | 8.60 A5 | | 12.45 |
| | | - | | | | | | | | | | | | |
| | Detroit, Mich. | | | \$86.00 R5 | | | | | 4.20 G3,M2 | 5.90 D1,D2, G3,M2,P11 | 6.30 G3 | 8.75 D2, G3 | | |
| | Duluth, Minn. | | | | | | - | - | | | | | | - |
| WEST | Gary, Ind. Harbor, Indiana | \$64.00 U1 | \$78.00 UI | \$86.00 UI, YI | 5.075 /3 | 4.25 I3, UI | 6.40 UI, 13 | | 4.05 /3, UI,YI | 6.00 /3 | 6.15 UI. 13, YI | 8.60 Y/ | 6.70 UI, YI | |
| MIDDLE | Sterling, 18. | | | | | | | | 4.15 N4 | | | | | |
| MID | Indianapolis, Ind. | | | | | | | | - | 5.90 C3 | | | | |
| | Newport, Ky. | | | - | - | | | | | | | | 6.70 N5 | |
| | Middletown, Ohio | | | | | | | | | 5.75 A7 | | | - | |
| | Niles, Warren, Ohio Sharon, Pa. | | | | | | | | 4.05 SI,R3 | 5.75 SI,R3, | 6.15 SI, | 8.60 SI, | 6.70 SI | 12.45 |
| | Pittsburgh, Pa. Midland, Pa. | \$64.00 UI, | \$78.00 J3, UI,CII | \$86.00 UI, | 5.075 UI | 4.25 J3, UI | 6.40 J3, UI | 4.25 UI | 4.05 S7,P6 | 5.75 B4, J3, S7 | R3 | R3 | 6.70 S9 | 12.45 |
| | Butler, Pa. | | | | | - | | - | | | | - | | - |
| | Pertsmouth, Ohio | - | - | - | - | 4 00 1712 | | - | 4.05 P7 | 5.75 P7 | | | | - |
| | Weirton, Wheeling, Follansbee, W. Va. | | | | | 4.25 W3 | | | 4.05 W3 | \$.7\$ F3,W3 | | 8.60 W3 | | |
| | Youngstown, Ohio | | \$78.00 C10 | \$86.00 YI, C10 | | 4.25 Y/ | 6.40 Y/ | | 4.05 UI, YI | 5.75 Y1,C5 | 6.15 UI, YI | 8.60 21 | 6.70 UI. YI | 12.45 |
| | Fontana, Cal. | \$72.00 <i>K</i> / | \$86.80K1 | \$105.00 <i>K</i> / | | 4.90K1 | 7.05K/ | 5.25K/ | 4.825K1 | 7.65K/ | 7.25K1 | | 8.10K/ | 14.5 |
| | Geneva, Utah | | \$78.00 C7 | | | 4.25 C7 | 6.40 C7 | | | | | - | | |
| | Kansas City, Mo. | | | | - | 4.85 S2 | 7.00 S2 | | 4.65 S2 | | | | 7.30 S2 | |
| WEST | Los Angeles, Torrance, Cal. | | \$87.50 B2 | \$106.00 B. | 2 | 4.95 B2, C7 | 7.10 B2 | | 4.80 B2,C7 | 7.80 C/ | | | | |
| WE | Minnequa, Colo. | | | | | 4.70 C6 | | | 5.15 C6 | | | | | |
| | San Francisco, Niles, Pittsburg, Cal. | | \$87.50 B2 | | | 4.90 B2 4.95 P9 | 7.05 B2 | | 4.80 B2,C7 | | | | | |
| | Seattle, Wash. | | \$91.50 B2 | | | 5.00 B2 | 7.15 B2 | - | 5.05 B2, P12 | | | | | |
| _ | Atlanta, Ga. | | | | - | | - | - | 4.25 A8 | | - | - | | - |
| H | Fairfield, Ala. City, | \$64.00 T2 | \$78.00 72 | - | - | 4 25 C/6, | 6.40 T2 | | 4.25 A8 | | 6.15 T2 | - | | - |
| SOUTH | Birmingham, Ala. | - TOTAL 12 | | | | R3, T2 | | | T2,C16 | | 6.15 12 | | | |
| 42 | Houston, Tex. | | \$85.00 S2 | \$93.00 S2 | 1 | 4.65 S2 | 6.85 S2 | | 4.45 S2 | | | | 7.10 S2 | |

| | ON AGE | | Italies 10 | entify produce | rs inted in K | ey at end of | table, Base | prices, t.o.b. | mill, in cen | ts per 15., un | iess otherwis | e noted. Ext | ras apply. | |
|--------|--|---------------------------------|---------------------|----------------|--------------------------------|-------------------------|------------------------------|------------------------------|-------------------------------|--------------------------|----------------------|---------------------------|----------------------------|----------------------------------|
| | RICES | | a Tiff | | SI | HEETS | | | | | WIRE | TINPL | .ATE† | BLACE |
| | (Effective et. 12, 1954) | Hot-rolled 18 ga. & hvyr. | Cold- rolled | Calvanized | Enamel- ing 12 ga. | Long Terne 10 ga. | Hi Str. Low Alloy H.R. | Hi Str. Low Alloy C.R. | Hi Str. Low Alloy Galv. | Hot- rolled /9 ga. | | Cokes* 1.25-l.s. base box | Flectro* 0.25-lb. base box | Holloward Enameling 29 ga. |
| | Bethlehem, Pa. | | | | | | | | | | | | | |
| - | Buffalo, N. Y. | 4.05 B3 | 4.95 B3 | | | | 6.10 B3 | 7.50 B3 | | | 4.675 W6 | † Special co | | |
| 1 | | | | | - | | | | | | | 1.25-lb coke | base box | - |
| - | Clayment, Del. | | | | | | | - | | | | | aking quality to 128 lb | - |
| | Coatesville, Pa. | 4.10 /42 | | | | - | 6.15 //2 | | | | | coke base be | from 1.25-lb | - |
| 1- | Conshohecken, Pa. | 4.10 /15 | | | | - | 4.13 AZ | | | | | add 25c. | 0.50-lb add | |
| 1 | Harrisburg, Pa. Hartford, Conn. | | | | - | - | | | | - | | 25c: 0.75-lb | | |
| EAST | Johnstown, Pa. | | | | | - | | | - | | 4.675 B3 | ential 1.00 H | /0.25 lb. | - |
| - | Fairless, Pa. | 4.10 UI | 5.00 UI | | | | 6.15 UI | 7.55 UI | | - | | \$8.90 UI | \$7.60 UI | - |
| | New Haven, Conn. | | | | | | | | - | | | - | | |
| | | | | | | | | | | | | | | |
| | Phoenixville, Pa. | | | | | | | | | | | | | |
| | Sparrows Pt., Md. | 4.05 B3 | 4.95 B3 | 5.45 B3 | | | 6.10 B3 | 7.50 B3 | 8.20 B3 | | 4.775 B3 | \$8.90 B3 | \$7.60 B3 | |
| | Worcester, Mass. | | | | | | | | | | 4.975 A5 | | | |
| | Trenten, N. J. | | | | | | | | | | | | | |
| | Alon, III. | | | | | | | | | | 4.85 L1 | | | |
| | Ashland, Ky. | 4.05 A7 | | 5.45 A7 | 5.375 A7 | | | | | | | | | |
| | Canton-Massillon, | | | 5.45 RI,R | 3 | | | | | 5.175 R/ | | | | |
| | Dover, Ohio | 4.05 AI, | - | - | - | | 6.10 UI | | | | 4.675 A5, | - | | - |
| | Chicago, Joliet, III. | W8 | | | | | 6.1007 | | | | N4,R3 | | | |
| | Sterling, III. | | | | | | | | | | 4.775 N4 | | | |
| | Cleveland, Ohio | 4.05 J3, R3 | 4.95 J3, R3 | 1 | 5.375 R3 | | 6.10 J3, R3 | 7.50 J3, R3 | | | 4.675 A5 | | | |
| | Detroit, Mich. | 4.20 G3, | 5.10 G3 | - | - | | 6.25 G3 | 7.65 G3 | | | - | - | | - |
| | | M2 | | | na 1000,500 X | | | | | | | | | |
| _ | Newport, Ky. | 4.05 N5 | | 5.45 N5 | | | | | | | | | AR FO 12 | 0 00 111 |
| E WEST | Gary, Ind. Harber, Indiana | 4.05 I3, U1, Y1 | 4.95 I3, UI, YI | 5.45 U1, 13 | 5.375 <i>13</i> , <i>UI</i> | 5.85 U1 | 6.10 U1.13 Y1 | 7.50 UI, Y | | | 4.675 Y1 | \$8.80 13, U1,Y1 | \$7.50 I3, UI, YI | 6.20 UI |
| MIDDLE | Granite City, III. | 4.25 G2 | 5.15 G2 | 5.65 G2 | 5.575 G2 | | | | | | | | \$7.70 G2 | 6.30 G2 |
| M | Kokomo, Ind. | 4.15 C9 | | 5.55 C9 | | | | | | 5.20 C9 | 4.775 C9 | | | |
| | Mansfield, Ohio | | | | | 5.85 E2 | | | | 5.175 E2 | | | | |
| | Middletown, Ohio | | 4.95 A7 | | 5.375 A7 | 5.85 A7 | | | | | | | | - |
| | Niles, Ohio Sharon, Pa. | 4.05 S1, R3 5.30 N3 | 4.95 R3 5.975 N3 | 5.45 N3 | 6.725 N3 | 5.85 N3 | 6.10 SI,R3 | 7.50 R3 | | | | \$8.80 R3 | \$7.50 R3 | |
| | Pittsburgh, Pa. Midland, Pa. Butler, Pa. | 4.05 J3, U1,P6 | 4.95 J3, UI,P6 | 5.45 UI | 5.375 UI | | 6.10 J3, UI | 7.50 J3, UI | 8.20 UI | | 4.675 A5 4.875 P6 | \$8.80 J3, U1 | \$7. 0 J3, UI | 6.20 U |
| | Portsmouth, Ohio | 4.05 P7 | 4.95 P7 | - | - | | | | | | 4.675 P7 | | | |
| | Weirten, Wheeling, | 4.05 W3, | 4.95 W3, | 5.45 W3, | | 5.85 W3, | 6.10 W3 | 7.50 W3 | | | | \$8.80 W3, | \$7.50 W3, | 6.20 F |
| | Follansbee, W. Va. Youngstewn, Ohio | 4.05 UI, | W5,F3 | W5 | 5.375 Y1 | W5 | 6.10 UI, | 7.50 Y/ | - | | 4.675 Y1 | W5 | W5 | W5 |
| _ | | | | | | | | | | | - | | - | |
| | Fontana, Cal. | 4.825K/ | 6.05K/ | - | | | 6.875K1 | 8.55K1 | | - | 5.475 <i>K1</i> | _ | | |
| | Geneva, Utah | 4.15 C7 | - | - | | | 6.45 C7 | - | - | | | | _ | - |
| | Kansas City, Me. | | - | - | - | | - | - | - | - | 5.475 C7. | | | - |
| WEST | Los Angeles, Torrance, Cal. | | | | | | | | | | B2 | | | |
| A | Minnequa, Colo. | | | | | | | | | | 4.925 C6 | | | |
| | San Francisco, Nilea Pittsburg, Cal. | 4.75 C7 | 5.90 C7 | 6.20 C7 | | | | | | | 5.325 C7 | \$9.55 C7 | \$8.25 C7 | |
| | Seattle, Wash. | | | | | | | | | | | | | |
| | Atlanta, Ga. | | | | | | | | | | | | | |
| TH | Fairfield, Ala. | 4.05 R3, | 4.95 T2 | 5.45 R3, | | | 6.10 T2 | | | 5.35 R3 | 4.675 T2, | \$8.90 72 | \$7.60 T2 | |
| SOUTH | Alabama City, Ala. | T2 | | T2 | | | - | _ | - | - | R3 | - | - | - |
| 1 | Houston, Texas | 4.45 S2 | | | | | | | | | 5.075 S2 | 1 | | |

October 14, 1954

12.75 A5 12.80 N7

12.45 G4

12.45 //5

11,

V5

12.45 SI

UI. 12.45 C5

14.55K/

52

52

ON AGE

183

| | STEEL | | | | D.C. | | | | | TEC | | 25.0 |
|----------|--|-------------------------|----------------------------------|------------------------------------|-----------------------------------|---------------------------------|------------------------------|--|----------------|-------------|-------------------------|-------------------|
| 1 | PRICES | | | BA | KS | | | | PLA | TES | - | WIRE |
| 0 | (Effective ct. 12, 1954) | Carbon Steel | Reinforc- ing | Cold Finished | Alloy Hot- rolled | Alloy Culd Drawn | Hi Str. H.R. Low Alloy | Carbon Steel | Floor Plate | Alloy | Hi Str. Low Allcy | Mfgr's, Bright |
| | Bethlehem, Pa. | | | | 5.075 B3 | 6.625 B3 | 6.45 B3 | | | | | |
| 1 | Buffale, N. Y. | 4.30 B3, R3 | 4.30 B3, R3 | 5.45 B5 | 5.075 B3, R3 | 6.625 B3,B5 | 6.45 B3 | 4.225 B3, R3 | | | 6.45 B3 | 5.75 W6 |
| | Claymont, Del. | | | | | | | 4.225 C4 | | 5.80 C4 | | |
| 1 | Coatesville, Pa. | | | | | - | | 4.225 <i>L</i> .4 | | 5.80 L4 | | |
| 1 | Conshohocken, Pa. | | | | | | | 4.225 //2 | 5.275 A2 | - | 6.45 /12 | |
| | Harrisburg, Pa. | | | | | | | 3.975 C3 | 5.275 C3 | | | |
| L | Hartford, Conn. | | | 5.90 R3 | | 6.925 R3 | | | | | | |
| EAST | Johnstown, Pa. | 4.30 B3 | 4.30 B3 | | 5.075 B3 | | 6.45 B3 | 4.225 B3 | | 5.80 B3 | 6.45 B3 | 5.75 B3 |
| | Fairless, Pa. | 4.45 UI | 4.45 UI | | 5.225 UI | | | | | | | |
| 1 | Newark, N. J. | | | 5.85 W10 | | 6.80 W10 | | | | - | | |
| i | Camden, N. J. | | | 5.85 P10 | | | | | | | | |
| | Putnam, Conn. | | | 5.95 W10 | | | | | | | | |
| | Sparrows Pt., Md. | | 4.30 B3 | | | | | 4.225 B3 | | 5.80 B3 · | 6.45 B3 | 5.85 B3 |
| | Palmer, Worcester, Readville, Mansfield, Mass. | | | 5.85 W11 5.95 B5,C14 | | 6.925 A5,B5 | | | | | | 6.0\$ A5, W6 |
| | Alton, III. | 4.50 L1 | | | | | | | | | | 5.925 LI |
| | Ashland, Newport, Ky. | | | | | | | 4.225 A7,N5 | | 5.80 N5 | | |
| | Canton-Massillon, Mansfield, Ohio | 4.40 R3 | | 5.40 R2, R3 | 5.075 R3, T5 | 6.625 R2, R3, T5 | | 4.225 E2 | * | | | |
| | Chicago, Joliet, III. | 4.30 UI, N4, W8, R3 | 4.30 N4, R3 | 5.40 A5,W10, W8,B5,L2 | 5.075 U1, R3, W8 | 6.625 A5,W8, W10,L2, B5 | | 4.225 UI,W8, I3, AI, R3 | 5.275 UI | 5.80 UI | 6.45 UI | 5.75 A5 R3,N4 |
| | Cleveland, Ohio | 4.30 R3 | 4.30 R3 | 5.40 A5,C13 | | 6.625 .45 6.665 C13 | 6.45 R3 | 4.225 J3, R3 | 5.275 J3 | | 6.45 J3,R3 | 5.75 A5 C/3 |
| | Detroit, Mich. | 4.45 R5,G3 | | 5.40 R5 5.60 B5,P8 5.65 P3 | 5.075 R5 5.225 G3 | 6.625 R5 6.825 B5, P3, P8 | 6.60 G3 | 4.375 G3 | | | 6.60 G3 | |
| WEST | Duluth, Minn. | | | | | | | | | | | 5.75 A5 |
| MIDDLE W | Gary, Ind. Harbor, Crawfordsville | 4.30 I3, UI, YI | 4.30 <i>I3, U1,</i> <i>Y1</i> | 5.40 M5, R3 | 5.075 <i>13, U1,</i> <i>Y1</i> | 6.525 M5 6.625 R3 | 6.45 U1,13, Y1 | 4.225 <i>1</i> 3, <i>UI</i> , <i>YI</i> | 5.275 /3 | 5.80 UI, YI | 6.45 U1,13, Y1 | 5.85 M4 |
| MID | Granite City, III. | | | | | | | 4.425 G2 | | | | |
| | Kokomo, Ind. | | | | | | | | | | | 5.85 C9 |
| | Sterling, III. | 4.40 N4 | 4.40 N4 | | | | | | | | | 5.85 N4 |
| | Niles, Ohio Sharon, Pa. | 4.30 R3 | | | | | 6.45 R3 | 4.225 S1, R3 | | _ 5.80 SI | 6.45 SI | |
| | Pittsburgh, Pa. Midland, Pa. | 4.30 J3, U1, C11 | 4.30 J3, U1 | 5.40.A5,C8,C11 J3,W10,B4, R3 | 5.075 UI,CII | 6.625 A5,C11, W10, C8, R3 | 6.45 J3, U1 | 4.225 J3, UI | 5.275 UI | 5.80 U/ | 6.45 J3, UI | 5.75 A5 P6 |
| | Portsmouth, Ohio | | | | | | | | | | | 5.75 P7 |
| | Weirton, Wheeling, Follansbee, W. Va. | 4.30 W3 | | | | | | 4.225 W3, W5 | | | | |
| | Youngstown, Ohio | 4.30 UI, YI, C10, R3 | 4.30 UI, YI, R3 | 5.40 F2, Y1, C10 | 5.075 UI, YI, C10 | 6.625 Y1,C10 6.665 F2 | 6.45 UI, YI | 4.225 UI, YI | | 5.80 Y/ | 6.45 Y/ | 5.75 Y |
| | Emeryville, Cal. | 5.05 /5 | 5.05 J5 | | | | | | | 1 | | |
| | Fentane, Cal. | 5.80 K/ | 5.00 K1 | | 6.125 KI | | 7.70 KI | 4.875 K1 | | 6.45 K1 | 7.15 K/ | |
| | Geneva, Utah | | | | | | | 4.225 C7 | | | 6.45 C7 | |
| | Kansas City, Mo. | 4.90 S2 | 4.90 S2 | | 5.675 S2 | | 7.05 S2 | | | _ | | 6.35 S. |
| WEST | Los Angeles, Torrance, Cal. | 5.00 B2,C7 | 5.00 B2,C7 | 6.85 R3 | 6.125 B2 | | 7.15 <i>B2</i> | | | | | 6.70 B |
| | Minnequa, Colo. | 4.75 C6 | 4.75 C6 | | | | | 5.075 C6 | | | | 5.90 C |
| | Portland, Ore. | 4.90 02 | | | | | | | | | | |
| | San Francisco, Niles, Pittsburg, Cal. | 5.05 B2 | 5.00 C7,P9 5.05 B2 | | | | 7.20 B2 | E 195 D2 | | 6 70 D3 | 7 9C D2 | 6.70 C |
| | Seattle, Wash. | 5.05 B2,P12, N6 | S.05 B2,P12 | | | | 7.26 B2 | 5.125 B2 | | 6.70 B2 | 7.35 B2 | |
| | Atlanta, Ga. | 4.50 A8 | 4.50 A8 | | | | | | | | | 5.95 |
| SOUTH | Fairfield, Ala. City, Birmingham, Ala. | 4.30 T2, C16 R3 | 4.30 T2,C16 | | | | 6.45 T2 | 4.225 T2, R | 3 | | 6.45 T2 | 5.75 / T2 |
| S | Houston, Ft. Worth, Lone Star, Tex. | 4.70 52 | 4.70 S2 | | 5.475 S2 | | 6.85 S2 | 4.55 L3 4.625 S2 | | 6.20 S2 | 6.85 SZ | 6.25 |

Steel Prices

(Effective Oct. 12, 1954)

Key to Steel Producers

With Principal Offices

Al Acme Steel Co., Chicago

WIRE

5.75 W6

5.75 R3

5.85 R3

6.05 A5,

5.925 L

5.75 A5, C/3

5.75 45

5.85 M4

5.85 CS

5.85 N4

5.75 A5,J3 P6

5.75 P7

5.75 VI

6.35 52 6.70 B2 5 90 (6

6.70 C7

5.95 A8

5.75 R3,

6.25 52

N AGE

Alan Wood Steel Co., Conshohocken, Pa. 42

Ailegheny Ludlum Steel Corp., Pittsburgh 43

American Cladmetals Co., Carnegie, Pa. 14

American Steel & Wire Div., Cleveland Angell Nail & Chaplet Co., Cleveland

17

Armoo Steel Corp., Middletown, O. Atlantic Steel Co., Atlanta, Ga. 18

Babcock & Wilcox Tube Div., Beaver Falls, Pa.

Bethlehem Pacific Coast Steel Corp., San Francisco

Bethlehem Steel Co., Bethlehem, Pa. 83

Blair Strip Steel Co., New Castle, Pa. 84

Bliss & Laughlin, Inc., Harvey, Ill. RS

Calstrip Steel Corp., Los Angeles

Carpenter Steel Co., Reading, Pa. C2

Central Iron & Steel Co., Harrisburg, Pa. C3

Claymont Products Dept., Claymont, Del. CI

Cold Metal Products Co., Youngstown, O.

C6 Colorado Fuel & Iron Corp., Denver C7 Columbia Geneva Steel Div., San Francisco

Columbia Steel & Shafting Co., Pittsburgh CB

Continental Steel Corp., Kokomo, Ind. C9

C10 Copperweld Steel Co., Pittsburgh, Pa.

CII Crucible Steel Co. of America, New York

C12 Cumberland Steel Co., Cumberland, Md.

Cuyahoya Steel & Wire Co., Cleveland

C/4 Compressed Steel Shafting Co., Readville, Mass.

C15 G. O. Carlson, Inc., Thorndale, Pa.

C/6 Conners Steel Div., Birmingham

DI Detroit Steel Corp., Detroit

D? Detroit Tube & Steel Div., Detroit

Driver Harris Co., Harrison, N. J. D3

D4 Dickson Weatherproof Nail Co., Evanston, Ill.

El Eastern Stainless Steel Corp., Baltimore

E2 Empire Steel Co., Mansfield, O.

FI Firth Sterling, Inc., McKeesport, Pa.

Fitzsimmons Steel Corp., Youngstown F3 Follansbee Steel Corp., Follansbee, W. Va.

GI Globe Iron Co., Jackson, O.

G? Granite City Steel Co., Granite City, Ill.

Great Lakes Steel Corp., Detroit C3

G4 Greer Steel Co., Dover, O.

HI Hanna Furnace Corp., Detroit

12 Ingersoll Steel Div., Chicago

Inland Steel Co., Chicago 14 Interlake Iron Corp., Cleveland

J1 Jackson fron & Steel Co., Jackson, O.

12 Jessop Steel Corp., Washington, Pa.
13 Jones & Laughlin Steel Corp., Pittsburgh

Joslyn Mfg. & Supply Co., Chicago

J5 Judson Steel Corp., Emeryville, Calif.

KI Kaiser Steel Corp., Fontana, Cal.

K2 Keystone Steel & Wire Co., Penria K3 Koppers Co., Granite City, Ill.

L1 Laclede Steel Co., St. Louis

L2 La Salle Steel Co., Chicago L3 Lone Star Steel Co., Dallas

L4 Lukens Steel Co., Coatesville, Pa.

MI Mahoning Valley Steel Co., Niles, O.

M2 McLouth Steel Corp., Detroit

M3 Mercer Tube & Mfg. Co., Sharon, Pa.

M4 Mid-States Steel & Wire Co., Crawfordsville, Ind.

M5 Monarch Steel Co., Inc., Hammond, Ind.

M6 Mystic Iron Works, Everett, Mass.

NI National Supply Co., Pittsburgh

N2 National Tube Div., Pittsburgh

N3 Niles Rolling Mill Div., Niles, O.

Northwestern Steel & Wire Co., Sterling, III.

Newport Steel Corp., Newport, Ky. N5

N6 Northwest Steel Rolling Mills, Seattle N7 Newman Crosby Steel Co., Pawtucket, R. I.

01 Oliver Iron & Steel Co., Pittsburgh 02 Oregon Steel Mills, Portland

P1 Page Steel & Wire Div., Monessen, Pa.

E2 Phoenix Iron & Steel Co., Phoenixville, Pa.

P3 Pilgrim Drawn Steel Div., Plymouth, Mich.

Pittsburgh Coke & Chemical Co., Pittsburgh P4

P5 Pittsburgh Screw & Bolt Co., Pittsburgh

P6 Pittsburgh Steel Co., Pittsburgh

P7 Portsmouth Div., Detroit Steel Corp., Detroit

P8 Plymouth Steel Co., Detroit

P9 Pacific States Steel Co., Niles, Cal.

P10 Precision Drawn Steel Co., Camden, N. J.

P11 Production Steel Strip Corp., Detroit

P12 Pacific Steel Rolling Mills, Seattle

RI Reeves Steel & Mfg. Co., Dover, O.

R2 Reliance Div., Eaton Mfg. Co., Massillon, O.

R3 Republic Steel Corp., Cleveland

Roebling Sons Cc., John A., Trenton, N. J.

R5 Rotary Electric Steel Co., Detroit

R6 Rodney Metals, Inc., New Bedford, Mass. R7 Rome Strip Steel Co., Rome, N. Y.

SI Sharon Steel Corp., Sharon, Pa.

SZ Sheffield Steel Corp., Kansas City

S3 Shenango Furnace Co., Pittsburgh

S4 Simonds Saw & Steel Co., Fitchburg, Mass.

S5 Sweet's Steel Co., Williamsport, Pa.

Standard Forging Corp., Chicago S6

Stanley Works, New Britain, Conn. S7

92 Superior Drawn Steel Co., Monaca, Pa.

59 Superior Steel Corp., Carnegie, Pa.

71 Tonawanda Iron Div., N. Tonawanda, N. Y.

T2 Tennessee Coal & Iron Div., Fairfield

73 Tennessee Products & Chem. Corp., Nashville

T4 Thomas Strip Div., Warren, O.

75 Timken Steel & Tube Div., Canton, O.

76 Tremont Nxil Co., Wareham, Mass.

77 Texas Steel Co., Fort Worth

Ul United States Steel Corp., Pittsburgh

U? Universal-Cyclops Steel Corp., Bridgeville, Pa.

U3 Ulbrich Stainless Steels, Wallingford, Conn.

U# U. S. Pipe & Foundry Co., Birmingham

W1 Wallingford Steel Co., Wallingford, Conn.

W2 Washington Steel Corp., Washington, Pa.

W3 Weirton Steel Co., Weirton, W. Va.

W4 Wheatland Tube Co., Wheatland, Pa.

W5 Wheeling Steel Corp., Wheeling, W. Va.

W6 Wickwire Spencer Steel Div., Buffalo

W7 Wilson Steel & Wire Co., Chicago

W8 Wisconsin Steel Co., S. Chicago, Ill. M9 Woodward Iron Co., Woodward, Ala.

W10 Wyckoff Steel Co., Pittsburgh

W11 Worcester Pressed Steel Co., Worcester, Mass. YI Youngstown Sheet & Tube Co., Youngstown

PIPE AND TUBING

Base discounts (pct) f.o.b. mills. Base price about \$200 per net ton.

| | | | | | | | BUTT | WELD | | | | | | | | | | SEAN | ALESS | | | |
|---|---|------------------------------|---|------------------------------|---|----------------------|---|-------------------------|---|----------------------------------|---|----------------------------------|-------------------------|------------------------------|-------|-------|--------|------|-------|------|------|-------|
| | 1/2 | În. | 34 | ln. | 11 | n. | 11/4 In. | | 1½ In. | | 2 In. | | 2½-3 ln. | | 2 In. | | 2½ łn. | | 3 1 | n. | 31/2 | 4 jn. |
| STANDARD T. & C. Sparrows Pt. B3 Youngstown R3. | Blk. 21.75 23.75 | Gal. 6.5 8.5 | Blk. 24.75 26.75 | | Blk. 27.25 29.25 | | Bik. 29.75 31.75 | | Blk. 30.25 32.25 | Gal. 15.75 17.75 | Blk. 30.75 32.75 | | | Gal. 16.0 18.0 | | | | | Blk. | | | |
| Fontana K1 Pittaburgh J3. Alton, III. L1. Sharon M3 | 10.75 23.75 21.75 23.75 | +4.5 8.5 6.5 8.5 | | +0.5 | 16.25 29.25 27.25 29.25 | 3.0 | 18.75 31.75 29.75 31.75 | 3.75 16.75 14.75 | 19.25 32.25 30.25 32.25 | 4.75 17.75 15.75 17.75 | 19.75 32.75 30.75 32.75 | 5.25 18.25 16.25 18.25 | 21.25 34.25 32.25 | 5.0 18.0 16.0 18.0 | 13.5 | +1.50 | 17.5 | 0.75 | 20.0 | 3.25 | 21.5 | 4.7 |
| Fairless N2 Pittsburgh N1 Wheeling W5 Wheatland W4 | 21.75 23.75 23.75 23.75 | 6.5 8.5 8.5 8.5 | 24.75 26.75 26.75 26.75 | 10.5 12.5 12.5 12.5 | 27.25 29.25 29.25 29.25 | | 29.75 31.75 31.75 31.75 | 16.75 16.75 16.75 | 30.25 32.25 32.25 32.25 | 17.75 17.75 | 30.75 32.75 32.75 32.75 | 16.25 18.25 18.25 18.25 | 34.25 34.25 34.25 | 16.0 18.0 18.0 18.0 | 13.5 | +1.50 | 17.5 | 0.75 | 20.0 | 3.25 | 21.5 | 4.7 |
| Youngstown YI | 23.75 22.75 23.75 | 8.5 7.5 8.5 | 26.75 25.75 26.75 | | 29.25 28.25 29.25 | | 31.75 30.75 31.75 | 15.75 | 32.25 31.25 32.25 | | 32.75 31.75 32.75 | | | 18.0 17.0 18.0 | | +1.50 | | | 20.0 | 3.25 | | 4.7 |
| EXTRA STRONG PLAIN ENDS Sparrows Pt. B3 Youngstown R3 Fairless N2 | 25.25 27.25 25.25 | 13.5 | 29.25 31.25 29.25 | 17.5 | 31.25 33.25 31.25 | 21.0 | 31.75 33.75 31.75 | 19.75 | 32.25 34.25 32.25 | 20.75 | | 21.25 | 35.25 33.25 | 18.0 20.0 18.0 | | | | | | | | |
| Fentana K1 Pittaburgh J3 Alton, III. L1 Sharon M3 Pittaburgh N1 | 14.25 27.25 25.25 27.25 27.25 | 13.5 11.5 13.5 13.5 | 18.25 31.25 29.25 31.25 31.25 | 17.5 | 20.25 33.25 31.25 33.25 33.25 | 19.0 | 20.75 33.75 31.75 33.75 33.75 | 17.75 19.75 | 32.25 34.25 | 20.75 18.25 20.75 20.75 | 21.75 34.75 32.75 34.75 34.75 | 21.75 | 33.25 35.25 | 20.0 18.0 20.0 20.0 | 14.0 | | 19.0 | 3.25 | 21.5 | 5.75 | 26.5 | |
| Wheatland W4. Youngstown Y1. Indiana Harbar V1 | 27.25 27.25 27.25 27.25 26.25 | 13.5 | 31.25 31.25 31.25 31.25 30.25 | 17.5 | 33.25 33.25 33.25 33.25 32.25 | 21.0 21.0 21.0 | 33.75 33.75 33.75 33.75 32.75 | 19.75 19.75 19.75 | 34.25 34.25 34.25 34.25 33.25 | | 34.75 34.75 34.75 33.75 | 21.75 21.75 21.75 | 35.25 35.25 35.25 | | | | | | | 5.75 | 26.5 | |
| Lorain N2 | 27.25 | | 31.25 | | 33.25 | | 33.75 | | 34.25 | 20.75 | 34.75 | | | 20.0 | 14.0 | | | | 21.5 | | 26.5 | 10.7 |

Threads only, buttweld and seamless 2½ pt. higher discount. Plain ends, buttweld and seamless, 3-in. and under, 4½ pt. higher discount. Buttweld jobbers discount, 5 pct. Galvanized discounts based on zinc price in range of ever 9¢ to 11¢ incl. per lb, East St. Louis. For each 2¢ change in zinc, discounts vary as follows: ½, ¾ and 1-in., 2 pt.; and 2-in., 1½ pt.; 2½ and 3-in., 1 pt. e.g., zinc price in range of ever 1½ to 13¢ would lower discounts; zinc price in range of ever 7¢ to 9¢ would increase discounts. East St. I price now 11.30¢ per lb.

Track Spikes Screw Spikes

4.45 5.45 5.425 7.30 5.275 11.50 11.

Track Bolts Treated

2

5.275 5.275 5.275 5.275

RAILS, TRACK SUPPLIES

Joint Bars

No. 1 Std. Rails Light Rails

Bessemer UI. 4.45 5.35 5.425 7.30 Enaley 72. 4.45 5.35 7.30 Enaley 72. 4.45 5.35 7.30 Gary UI. 4.45 5.35 7.30 Gary UI. 4.45 5.35 1nd. Harber 13. 4.45 5.35 1nd. Harber 13. 4.45 5.35 5.425 7.30 Jehnstewn B3. 5.35 5.425 7.30 Jehnstewn B3. 5.35 5.425 7.30 Pittsburgh UI. 5.35 5.425 7.30 Pittsburgh UI. 5.45 5.45 7.30 Pittsburgh J3 7.30 Steelton B3. 4.45 5.425 7.30 Terrance C7. Williamsport S5. 5.35 7.30 7.30

F.o.b. Mill Cents Per Lb

FLECTRICAL SHEETS

| | | | - | | |
|-----------------------------|-------------------|--------------------|-----------------------|--|--|
| 22-Gage | Hot-Rolled | | educed Cut Length) | | |
| F.a.b. Mill Centa Per Lb | (Cut Longths)* | Semi- Processed | Fully Processed | | |
| Field | 8.025 | 8.225 | ***** | | |
| Armature | 8.50 | 8.75 | 9.25 | | |
| Elect | 9.10 | 9.35 | 9.85 | | |
| Motor | 10.10 | 10.35 | 10.85 | | |
| Dyname | 11.00 | 11.25 | 11.75 | | |
| Trans. 72 | 11.95 | 12.20 | 12.70 | | |
| Trans. 65 | 12.50 | Grain C | Driented | | |
| Trans. 58 | 13.00 | Trans. 80 16.6 | | | |
| Trans. S2 | 14.00 | Trans. 73 | 17.10 | | |

Producing points: Beech Bottom (W5); Brackenridge (A5); Granite City (G7); Indiana Harber (I3); Mansfield (E7); Newport, Ky. (N5); Niles, O. (N3); Vandargrift (U1); Warren, O. (R3); Zanesville (A7).

**Cails 756 higher.

CLAD STEEL

| Stainless-carbon | Plate | Sheet |
|---|--------|-------|
| No. 304, 20 pct. Coatesville, Pa., L4 | *33.20 | |
| Washington, Pa., J2 | **** | |
| Claymont, Del., C4 | **** | 22 61 |
| New Castle, Ind., 12 | ***** | 32.5 |
| 10 pct. Coatesville, Pa., L4 | 38.30 | |
| 10 pct., Coatesville, Pa., L4 | 46.90 | |
| Monel-carbon 10 pct. Coatesville, Pa., L4 | 39.70 | |

* Includes annealing and pickling, sandblasting.

| WARE- | | | | | | | | | Base | price, f. | o.b., dell | ars per l | 00 ІЬ. |
|----------------------------|--------------|--------------------------|-------------------------|------------|-------------|---------------|---------------|---------------|---------------------------|-----------------------------------|----------------------------------|-----------------------------------|----------------------------------|
| HOUSES | - | Sheets | | St | rip | Plates | Shapes | Ba | rs | | Alloy | Bars | |
| Ciries OCity Delive, | Hot-Rolled | Cold-Rolled (15 gage) | Galvanized (10 gage) | Hot-Rolled | Cold-Rolled | | Standard | Hot-Rolled | Cold- Finished | Hat-Rulled A 4615 As Rolled | Het-Rolled A 4140 Annealed | Cold-Drawn A 4615 As Roffed | Cold-Drawn A 4140 Annealed |
| Baltimore\$.2 | 0 6.22 | 7.51 | 7.78 | 6.89 | | 6.57 | 6.92 | 6.88 | 8.52 | | | | ***** |
| Birmingham | 5 6.35- | | | 6.60 | 9.60 | 6.65 | 6.65 | 6.50 | 9.00 | | | | |
| Boston | 6.50 7.23 | 8.10 | 9.00 | 7.47 | 9.65- | 7.34- | 7.49 | 7.20 | 8.60- | 12.60- | 12.45- | 15.15 | 15.10 |
| Buffalo | 0 6.35 | 7.403 | 9.52 | 6.70- | 9.85 | 7.37 6.65- | 6.70- | 6.50- | 8.70 7.85 ³ | 12.80 12.50 | 12.46 12.15 ³ | 14.85 | 14.75- |
| Chicago | 6.40 | 7.45 | 8.84 | 6.75 | | 6.70 | 6.77 | 6.55 | 7.90 | 12.25 | 11.90 | 14.60 | 14.88 |
| Cincinnati | 5 6.49- | 7.37-7.42 | 8.30 | 6.86- | | 6.81- | 6.91 | 6.75- 6.80 | 7.80- 7.85 | 12.55 | 12.15- 12.20 | 14.90 | 14.80- |
| Cleveland | 6.38 | 7.38 | 8.45 | 6.72 | | 6.69 | 7.02 | 6.57 | 7.60 | 11.96 | | ****** | 14.61 |
| Denver | 7.85 | 8.85 | 10.02 | 8.20 | | 7.95 | 7.95 | 8.05 | 9.85 | | | | ***** |
| Detroit | 6.57 | 7.57 | 8.50- 8.58 | 6.90 | | 6.80- | 7.16 | 6.79 | 7.77 | 12.45 | 12.10 | 14.80 | 14.75 |
| Houston | e 7.35 | 7.65-7.80 | | 7.70 | | 7.35 | 7.60 | 7.70 | 9.50- | | 13.10 | | |
| Kansas City | 0 7.05 | 8.05 | 8.95 | 7.29 | | 7.19 | 7.36 | 7.18 | 8.07- | | 12.27 | | |
| Les Angeles: | 0 7.40 | 9.25 | 9.85 | 7.75 | | 7.35 | 7.55 | 7.35- | 8.27 10.05 | ****** | 13,20 | ****** | 16.35 |
| Mamphis | 6.79 | 7.69 | | 6.90 | | 7.01 | 7.09 | 7.45 6.88 | 8.24 | | | | |
| Milwaukee | 0 6.47 | 7.47 | 8.21- | 6.71 | | 6.61 | 6.86 | 6.60 | 7.69 | 12.34 | 11.99 | 14.69 | 14.64 |
| New Orleans | 5 6.70 | 7.65 | 8.39 | 6.80 | | 6.90- | 7.05 | 6.80 | 8.70- | | | | 14.84 |
| New York | | | 8.791 | 7.36- | | 6.95 | 7.13- | 7.30- | 10.70 | 12.63 | 12.28 | | 14.93 |
| | 6.98 | 8.46 | 8.99 | 7.56 | | 7.27 | 7.38 | 7.37 | 8.73 ² 8.60 | | 10.00 | | |
| | | | | | ***** | | | 1 | 1 | ****** | | ****** | |
| Philadelphia | | | 8.094 | | ***** | 6.49 | 6.54 | 6.74 | 8.193 | ****** | 11.66- | ****** | 14.61 |
| Pittaburgh | 6.38 | 7.38 | 8.30- 8.50 | 6.72- | ***** | 6.52 | 6.69 | 6.51 | 7.85 | 12.25 | 11.90 | 14.60 | 14.55 |
| Portland | 0 7.60 | 8.75 | 9.05 | 7.85 | | 7.45 | 7.50 | 7.55 | 10.95 | | | | |
| Salt Lake City | 7.65 | 10.20 | 10.70 | 9.05 | | 7.70 | 7.70- 8.85 | 8.80 | 10.95 | ***** | | | |
| San Francisco | 0 7.55 | 8.95 | 9.35- | 7.80 | | 7.40 | 7.50 | 7.35 | 10.05 | | 13.20 | | 16.35 |
| Seattle | 0 8.10 | 9.80 | 10.15 | 8.20 | | 7.80 | 7.75 | 7.80 | 10.95 | | 13.65 | | 16.30 |
| St. Lauis | 6.62 | | 8.54- 8.59 | 6.91 | | 6.81 | 7.09 | 6.80 | 7.89 | 12.54 | 12.19 | 14.84-14.89 | 14.45 |
| St. Paul | 5 7.03 | 8.03- | 8.96 | 7.28 | | 7.19 | 7.35 | 7.16 | 8.26 | ***** | 12.56 | | 15.21 |

Base Quantities (Standard unless otherwise keyed): Cold finished bars; 2000 lb or over. Alloy bars; 1000 to 1999 lb. All others; 2000 to 9999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may not be combined with each other or with galvanized sheets for quantity. Exceptions: (1) 1500 to 9999 lb. (2) 1000 lb or over. (3) 3.25 delivery. (4) 1000 to 1999 lb, \$.25 delivery.

MERCHANT WIRE PRODUCTS

| | Standard & Coated Nails | Woven Wire Fence 9-151/2 ga. | "T" Fence Posts | Single Loop Bale Ties | Galv. Barbed and Twisted Barbless Wire | Merch. Wire Ann'ld | Merch. Wire Gabr. |
|--|--------------------------|---------------------------------|-----------------|-----------------------|---|----------------------|--|
| F.o.b. Mill | Col | Col | Col | Col | Col | #/lb. | 6/% . |
| Alabama City R3 Aliquippa, Pa. J3 Atlanta A8 Bartonville K2 | 137 139 | 149 151 151 | | 157 | 156 164 164 | 7.00 | 7.30 7.421 7.521 7.55 7.30 |
| Buffale W6 | 137 | 149 | *** | 155 | 162 | 6.90 | 7.45 |
| Cleveland A5 Crawfordsville M4 Donora, Pa. A5 Duluth A5 Fairfield, Ala. T2 Galveston D4 Heusten S2 | 139 137 137 | 151 146 146 | 150 | 157 155 155 | 159 159 159 | 7.00 6.90 6.90 | 7.55 7.39 7.30 |
| Galveston D4 | 137 139 145 137 | 154 149 | | 155 | 167 167 | 7.30 | 7.70 |
| Johnstown, Pa. B3 Joliet, Ill. A5. Kokomo, Ind. C9. Los Angeles B2 | | | | | | | 7.38 7.53 |
| Kansas City S2 Minnequa C6 Monessen P6 Moline, III. R3 | 148 142 137 | 158 156 151 | 150 | 160 | 168 | 7.50 7.15 6.90 | 7.90 7.55 7.45 |
| Moline, Ill. R3 Pittaburg, Cal. C7 Pertamouth P7 Rankin, Pa. A5 So. Chicage R3 | 150 | 169 | | 179 | 179 | 7.85 6.90 6.90 | 8.25 7.98 7.30 |
| S. San Francisco C6 Saarrawa Pt. R3 | 130 | | | is | 179 | 7 00 | 7 68 |
| Struthers, O. Y1 Worcester A5 Williamsport, Pa. S5 | 143 | | 150 | | | 7.20 | 7.55 |

Cut Nails, carleads, base \$8.30 per keg at Consbehockee, Pa. (AZ).

* Alabama City and So. Chicage don't include zinc estra Galvanized products computed with zinc at 11.0¢ per like

C-R SPRING STEEL

| | CARBON CONTENT | | | | | |
|-----------------------------|----------------|------|---------------|---------------|-------|--|
| Cents Per Lb F.o.b. Mill | | | 0.61- 0.80 | 0.81- 1.05 | | |
| Bridgeport, New | | | | | | |
| Britain, Conn. S7* | | 8.05 | 9.00 | 11.15 | 13.85 | |
| Buffale, N. Y. R7 | 5.75 | 8.05 | 9.00 | 10.95 | 13.25 | |
| Carnegie, Pa. S9 | | 8.05 | 9.00 | 11.15 | 13.85 | |
| Cleveland A5 | 5.75 | 8.05 | 9.00 | 11.15 | | |
| Detreit D1 | 5.90 | 8.25 | 9.20 | 10.95 | | |
| Detroit D2 | 5.90 | | | | | |
| Harrison, N. J. C// | | | | 11.45 | 14.19 | |
| Indianapolis C5 | 6.00 | | | 11.15 | | |
| New Castle, Pa. B4 | 5.75 | | | 10.95 | | |
| New Haven, Conn. D1. | | | | 11.25 | | |
| Pawtucket, R. I. N7 | | | | 11.45 | | |
| Riverdale, Ill. Al | | | | 11.15 | | |
| Sharon, Pa. Sl | | | | 11.15 | | |
| Trenton R4 | | 8.35 | | 11.25 | | |
| Wallingford W/ | 6.20 | | | | | |
| Warren, Ohio T4 | | | | 10.95 | | |
| Weirton, W. Va. W3 | | | | 10.95 | | |
| Worcester, Mass. A5 | | | | 11.45 | | |
| Youngstown C5 | 5.85 | | | | | |

BOILER TUBES

| \$ per 100 ft. carioad | Si | iže | Sean | nless | Elec. | Weld |
|---------------------------------------|-----------------------------|----------------|--|-------------------------|-------------------------|-------------------------|
| lots, cut 10 te 24 ft. F.o.b. Mill | OD- In. | B.W. Ga. | H.R. | C.D. | H.R. | C.D. |
| Babcock & Wilcox | 2 21/2 3 31/2 4 | 12 12 11 | 28.33 38.15 44.05 51.43 68.29 | 45.74 52.82 61.66 | 37.00 42.72 49.88 | 44.36 51.23 59.81 |
| National Tube | 2 2½ 3 3½ 4 | 12 12 11 | 28.33 38.15 44.05 51.43 68.29 | 45.74 52.82 61.66 | 37.00 42.72 49.88 | |
| Pittsburgh Steel | 2 2½ 3 3½ 4 | 11 | 28, 33 38, 15 44, 05 51, 43 68, 29 | 45.74 52.82 61.66 | | |

Miscellaneous Prices-

(Effective Oct. 12, 1954)

TOOL STEEL

S Page. CTS

Wire" Galv.

7th. 6/th. 90 7.30 90 7.425 90 7.525 90 7.525 90 7.39 7.45

.90 .00 7.55 .90 7.36 .90 7.30 .90 7.30

.30 7.78 .90 7.45 .90 7.30 .00 7.55 .85 .50 7.98 .15 7.56 .90 7.45

.85 8.25 .90 7.90 .90 7.38

.00 7.55 .90 7.55 .20

shohocken,

zinc extra

TENT

1. 15 13.85 0.95 13.25 1. 15 13.85 1. 15 13.85 0.95 13.85 0.95 13.85 1. 15 13.85 1. 15 13.85 1. 15 13.85 1. 15 13.85 1. 15 13.85 1. 15 13.85 1. 15 13.85 1. 15 13.85 1. 15 13.85 1. 15 13.85 1. 15 13.85 1. 15 13.85 1. 15 13.85 1. 15 13.85

Elec. Weld H.R. C.D.

27.48 32.95 37.00 44.36 42.72 51.23 49.88 59.81 66.24 79.42

27.45 37.00 42.72 49.83 66.24

N AGE

| . 1 | 7 | Mo | | Co | Base per lb \$1.54 |
|-------|-------------------------------|---|---|--------|---|
| | 1 | _ | | 9 | 1.705 |
| | 1.5 | | | - | .90 |
| | 3 | 6 | | - | 1.29 |
| chr | omiu | m | | | 73 |
| d ma | ngan | . 980 | | | 405 |
| on . | | | | | 37 |
| n | | | | | 31 |
| e pri | per | on a | nd | east (| of Mis- Vest of |
| | d mai on . bon e pri | d mangan on bon e prices 3.5¢ per | 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - | 1 | 1 5 5 5 - 1.5 5 - 1.5 5 - 1.5 5 - 1.5 5 - 1.5 5 - 1.5 5 - 1.5 5 - 1.5 5 5 - 1.5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 |

CAST IRON WATER PIPE

| Per Net Ton |
|---|
| 6 to 24-in., del'd Chicago \$111.80 to \$115.30 |
| 6 to 24-in., del'd N. Y 115.00 to 116.00 |
| 6 to 24-in., Birmingham 98.00 to 102.50 |
| f-in, and larger f.o.b. cars, San |
| Francisco, Los Angeles, for all |
| rail shipments; rail and water |
| shipments less \$129.50 to \$131.50 |
| Class "A" and gas pipe, \$5 extra; 4-in. |
| pipe is \$5 a ton above 6-in. |

LAKE SUPERIOR ORES

| 51.50% Fe; natural content, delivered lower Lake ports. Prices effective July 1, 1953, to end of 1954 season. Gross Ton |
|--|
| Openhearth lump \$11.15 |
| Old range, bessemer 10.30 |
| Old range, nonbessemer 10.15 |
| Mesabi, bessemer |
| Mesabi, nonbessemer 9.90 |
| High phosphorus 9.90 |
| Prices based on upper Lakes rail freight |

Prices based on upper Lakes rall freight rates, Lake vessel freight rates, handling and unloading charges, and taxes thereon, in effect on June 24, 1953. Increases or decreases after such date are for buyer's account.

COKE

| Furnace, beehive (f.o.b. oven) | Net-Ton |
|--|------------|
| Connellsville, Pa \$14.25 | to \$14.50 |
| Connelisville, Pa\$14.25 Foundry, beehive (f.o.b. oven) | |
| Connellsville, Pa \$16.50 | to \$17.00 |
| Foundry, oven coke | 411100 |
| Buffalo, del'd | \$98.08 |
| Chicago, f.o.b. | . 24.50 |
| Detroit, f.o.b. | 25.50 |
| New England, del'd | 26.05 |
| Seahoard N. T. Co.b. | 24.00 |
| Seaboard, N. J., f.o.b. | . 34.00 |
| Philadelphia, f.o.b. | 23.00 |
| Swedeland, Pa., f.o.b. | 23.00 |
| Painesville, Ohio, f.o.b. | 25.50 |
| Erie, Pa., f.o.b. | 25.00 |
| Cleveland, del'd | 37.48 |
| Cincinnati, del'd | 26.56 |
| St. Paul, f.o.b. | 23.75 |
| St. Louis, f.o.b. | 26.00 |
| Birmingham, f.o.b. | 22.65 |
| Lone Star, Tex., f.o.b. | 18.50 |
| | 20.00 |

ELECTRODES

Cents per lb, f.o.b. plant, threaded, with nipples, unboxed

| G | RAPHITE | | | CARBON | |
|---------------|-----------------|-------|----------------|-----------------|-------|
| Dum, (in.) | Length (In.) | Price | Diam. (In.) | Langth (in.) | Price |
| 24 | 84 | 20.50 | 40 | 100, 110 | 8.95 |
| 20 | 72 | 20.00 | 35 | 110 | 8.95 |
| 12 to 18 | 72 | 20.50 | 30 | 110 | 8.95 |
| 7 to 10 | 68 | 21.00 | 24 | 72 to 84 | 9.10 |
| | 80 | 23.25 | 20 | 90 | 8.95 |
| 4 | 40 | 26.00 | 17 | 72 | 9.10 |
| 3 | 40 | 27.25 | 14 | 72 | 9.50 |
| 23/2 | 30 | 28.00 | 10, 12 | 60 | 10.30 |
| _ 2 | 24 | 43.50 | 8 | 80 | 10.55 |

BOLTS, NUTS, RIVETS, SCREWS

| (Rase | discount, | tab | em (77) |
|----------|------------|--------|-----------|
| (AF UNDE | GEOCUMISS, | 1.0.0. | 379 850 7 |

| Machine and Carriage Bolt | Disc | ount |
|--|-------|----------|
| 1/ in A smaller = 4 in A | Case | C. |
| ½ in. & smaller x 4 in. & shorter ½ in. & smaller x 6 in. & | 2 | 22 |
| shorter | +3 | 18 |
| shorter | +4 | 17 |
| All diam. longer than 6 in | +6+15 | 15 |
| 1/2 in. & smaller x 6 in. & shorter Lag. all diam. x 6 in. & | +3 | 18 |
| shorter Lag, all diam. longer than | | 25 |
| 6 in. Plow bolts | +2 | 19 23 |

Stove Bolts

| Packaged, package list 41-44 14-10 |) |
|---|-----|
| Bulk, bulk list* 56-59 | |
| * Minimum quantity per item: 15.0 | 000 |
| pieces lengths to 3": 5,000 pieces length | hs |
| over 3". Special finishes: Zinc. Parkeris | |
| cadmium or nickel add 8¢ per lb n | |
| Black oil finish add 21/4¢ per lb net. | - |

Nuts, H.P., C.P., reg. & kvy.

| | Di | acount, |
|--|------------|--------------------------------------|
| %" or smaller %" to 1%" inclusive 1%" to 1%" inclusive | Discount | Ogse or Keg 64 66 67 1/2 |
| C.P. Hex regular & hv | у. | |
| All sizes | . 55 | 64 |
| Hot Galv. Nuts (all ty | (pes) | |
| %" or smaller | . 38 41 | 50 52 1/2 |

Finished, Semi-finished, Slotted or Cas-

| Rivets | | Page 200 100 7h |
|-----------|-------------|-----------------|
| 1/2 in. & | larger | Base per 100 lb |
| 7/16 in. | and smaller | 37 |

7/16 in. and smaller

Cap Screws

| Disc | |
|-----------------------|-------------------------------|
| | H.C. Hea Treated |
| | |
| 38 | 28 |
| 15 | 1 |
| 50 | 42 |
| 32 | 21 |
| dia/ 16", liam. | m. %" diam. |
| | 38 15 50 32 item: |

Machine Screws

| Packaged, | gross | list | 31-36 | Disc | |
|--------------------------------|-------|------|-------|------|--------|
| Bulk, bulk *Minimus per item. | list* | | 11-17 | | pieces |

Machine Screw & Stove Bolt Nuts

| PECKEEG, Package | TEDP OT-0 | | TA |
|------------------|-----------|--------|-------|
| Bulk, bulk list* | 11-1 | 7 - | |
| *Minimum bulk | quantity, | 15,000 | piece |
| per item. | | | |

REFRACTORIES

| Fire Clay Brick Carloads pe | r 1000 |
|--|----------|
| First quality, Ill., Ky., Md., Mo., Oh (except Salina, Pa., add \$5.00) | io. Pa. |
| (except Salina, Pa., add \$5.00) | 114.00 |
| No. 1 Ohio | 107.00 |
| No. 1 Ohio Md., Ky., Mo., Ill. | 107.00 |
| No. 2 Ohio | 98.00 |
| Ground fire clay, not ton, bulk (ax- | |
| cept Salina, Pa., add \$1.50) | 17.00 |
| | |
| Silica Brick | |
| | |
| Mt. Union, Pa., Ensley, Ala | 120.00 |
| Childs, Hays, Pa. | 125.00 |
| Chicago District | 130.00 |
| Western Utah | |
| California | |
| Super Duty Hays, Pa., Athens, Tex., Wind- | |
| Hays, Pa., Athens, Tex., Wind- | 100.00 |
| | 137.00 |
| Curtner, Calif. Silica cement, net ton, bulk, East- | 155.00 |
| Sinca cement, net ton, bulk, East- | 90.00 |
| ern (except Hays, Pa.) Silica cement, net ton, bulk, Hays, | 20.00 |
| De Cement, net ton, buik, Hays, | 22,00 |
| Pa. Silica cement, net ton, bulk, Chi- | 44.00 |
| cago District Engley Ala | 21.00 |
| cago District, Ensley, Ala. Silica cement, net ton, bulk, Utah | 41.00 |
| and Calif. | |
| | |
| Charma Balak | |
| | net ton |
| Standard chemically bonded Balt | \$86.00 |
| Standard chemically bonded, Curt- | |
| ner, Calif | 96.25 |
| Burned, Balt | 80.00 |
| | |
| Magnesite Brick | |
| Otto I - 1 D-141 | |
| Standard Baltimore | \$109.00 |
| Chemically bonded, Baltimore | 97.50 |
| | |
| Grain Magnesite St. %-in. | grains |
| Domestic, f.o.b. Baltimore | |
| in bulk fines removed | 264 40 |
| Domestic, f.o.b. Chewalah, Wash., | 401.10 |
| Luning, Nev. | |
| in bulk | 28.00 |
| in sacks | 43.75 |
| | |
| Dead Burned Dolomite Per | |
| Dedu burned Dolomite Per | net ton |
| F.o.b. bulk, producing points in: Pa., W. Va., Ohio | 91 4 EO |
| Pa., W. Va., Unio | \$14.50 |
| Midwest | 14.60 |
| Missouri Valley | 10.00 |
| | |
| | |

FLUORSPAR

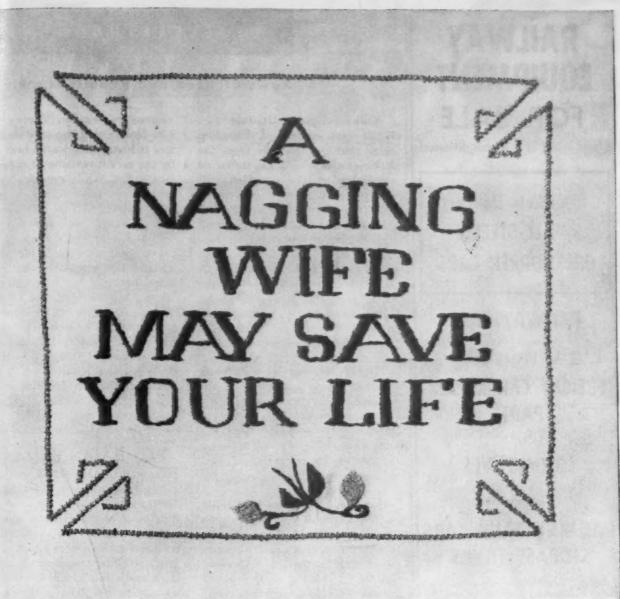
| Washed | l g | ra | ve | 1, | 1 | .0. | b. | | R | lo | Bio | ela | ai | re, | Ill | |
|-------------|------|----|-----|-----|----|-----|----|---|----|----|-----|-----|-----|-----|-------|---|
| Price, net | to | n; | el | Te | ct | iv | e | C | al | 8 | C | 01 | at | ent | 44.00 | n |
| 72 /2 //0 . | | | 0 0 | | | | | | | | | | 9 9 | - 4 | 33.00 | ē |
| 70% or I | nore | | 0.0 | | | | | | | | | | | | 43.00 | 9 |
| 60% or le | 88 . | | 0 0 | 0.0 | | | | | | | | | | | 18.00 | ď |

METAL POWDERS

| Per pound, f.o.b. shipping point, lots, for minus 100 mesh. | in ton |
|--|-----------------|
| Swedish sponge iron c.i.f. | |
| New York, ocean bags | 11.25∉ |
| Canadian sponge iron, | |
| Del'd in East | 12.0€ |
| F.o.b. ship. pt., carloads | 9.5 € |
| Domestic sponge iron, 98+% | 0.54 |
| Fe, carload lots | 9.5€ |
| Electrolytic iron, annealed, | 38.0€ |
| 99.5+% Fe | 00.V# |
| minus 325 mesh, 99+% Fe | 53.5€ |
| Hydrogen reduced iron mi- | 00.04 |
| nus 300 mesh, 98+% Fe. 63.0¢ | to 80.0¢ |
| Carbonyl iron, size 5 to 10 | |
| mieron, 98%, 00.8+% Fe \$3.0¢ | to \$1.48 |
| Aluminum | 31.5€ |
| Brass. 10 ton lots 29.50¢ t | 0 36.50€ |
| Copper, electrolytic Copper, reduced Cadmium, 100-199 lb. 95¢ plus met | 43.50€ |
| Copper, reduced | 43.50€ |
| Cadmium, 100-199 lb. 95¢ plus met | al value |
| Chromium, electrolytic, 97% | |
| min., and quality, del'd | \$3.60 |
| Lead | 21.00¢ 57.0¢ |
| Manganese | \$2.76 |
| Molybdenum, 39% Nickel, unannealed | 89.50€ |
| Nickel, annealed | 96.504 |
| Nickel, spherical, unannealed | 93.50 |
| Silicon | 43.50€ |
| Solder powder 7.0¢ to 9.0¢ plus m | et value |
| Stainless steel, 302 | 91.04 |
| Stainless steel, 316 | \$1.10 |
| Tin | al value |
| Tungsten, 99% (65 mesh) | 34.05 |
| Zinc, 10 ton lots | to 25.04 |
| | |

Ferroalloy Prices-

| (Effective Oct. 12, 1954) | | and the second second second second |
|--|---|---|
| Contract prices, cents per lb contained Cr, lump, bulk, carloads, del'd, 65-72% Cr, 2% max Si. 0.025% C 36.00 0.15% C 33.75 0.025% C, Simplex 34.50 0.50% C 33.25 0.06% C 33.400 0.10% C 33.00 0.10% C 34.00 2.00% C 32.75 65-63% Cr, 4-3% C 24.75 62-66% Cr, 4-3% C 24.75 62-66% Cr, 4-6% C, 6-9% Si 25.60 S. M. Ferrochrome Contract prices, cents per pound, chromium contained, lump size, delivered. High carbon type: 60.55% Cr, 4-6% Si, 4-6% Mn, 4-6% C. Carloads 28.00 Loss ton lots 28.00 Loss ton lots 28.00 Loss ton lots 29.60 High Nitrogen Ferrochrome Low-carbon type 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 3¢ for each additional 0.25% of N. Chromium Metol Contract prices, per lb chromium contained, packed, delivered, ton lots, 97% min. Cr, 1% max Fe. 0.10 max C 1.16 9 to 11% C 1.25 Low Carbon Ferrochrome Silicon (Cr 34-41%, Si 42-49%, C 0.05% max.) Contract price, carloads, f.o.b. Niagara Falls, freight allowed, lump 4-in. x down, 24.756 per lb contained of runs 22.006 | Spiegeleisen Contract prices, per gross ton, lump, f.o.b. Palmerton, Pa. Manganese Silicon 16 to 19% 3% max. \$84.00 19 to 21% 3% max. \$86.00 21 to 23% 3% max. \$85.00 23 to 25% 3% max. \$8.50 23 to 25% 3% max. \$91.00 Manganese Metal Contract basis, 2 in. x down, cents per pound of metal, delivered. 95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe. Carload, packed 45.00 Ton lots 43.50 Electrolytic Manganese F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound. Carloads 30.00 Ton lots 32.00 250 to 1999 lb 34.00 Premium for hydrogen-removed metal 0.75 Medium Carbon Ferromanganese Mn 80% to 85%, C 1.25 to 1.50. Contract price, carloads, lump, bulk, delivered, per lb of contained Mn 21.35% Low-Carb Ferromanganese Contract price, cents per pound Mn contained, lump size, del'd Mn 85-90%. | Alsifer, 20% Al, 40% Si, 40% Fe, Contract basis, f.o.b. Suspension Bridge, N. Y., per ib. Carloads |
| per lb contained Si. Bulk 2-in. x down, 25.05¢ per lb contained Cr plus 10.80¢ per lb contained Si. Bulk 1-in. x down, 25.25¢ per lb contained Cr plus 11.00¢ per lb contained Si. Calcium-Silicon | 0.07% max. C, 0.06% P, 90% Mn 32.00 33.85 35.05 0.07% max. C 29.95 31.80 33.80 0.15% max. C 28.45 30.30 31.50 0.30% max. C 26.95 28.80 30.00 0.50% max. C 26.45 28.30 39.50 0.75% max. C, 80-85% Mn, 5.0-7.0% S1 23.45 25.30 26.50 Silicomanganese | load, per net ton |
| Contract price per lb of alloy, lump, delivered. 20-33% Cr, 60-65% Si, 3.00 max. Fe. Carloads 19.00 Ton lots 22.10 Less ton lots 23.60 Calcium-Manganese—Silicon Contract prices, cents per lb of alloy, lump, delivered. 16-20% Ca, 14-18% Mn, 53-59% Si. Carloads 22.30 Ton lots 22.30 | Contract basis, lump size, cents per pound of metal, delivered, 55-68% Mo, 18-20% SI, 1.5% max. C for 2% max. C, deduct 0.2¢. Carload bulk | Langeloth, Pa |
| Less ton lots | Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., \$89.50. Add \$1.00 per ton for each additional 0.50% Si up to and including 17%. Add \$1.45 for each 0.50% Mn over 1%. Silicon Metal Contract price, cents per pound con- | of alloy 35-40%, f.o.b., freight allowed, ton lots |
| V Foundry Alloy Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V.5; 38-42% Cr, 17-19% St, 8-11% Mn, packed. Carload lots | tained Si, lump size, delivered, packed. Ton lots Carloads 96% Si, 2% Fe 20.10 13.00 97% Si, 1% Fe 20.60 18.50 Silicon Briquets Contract price, cents p pound of briquets, bulk, delivered, 40 Si, 2 lb Si | Bortam, f.o.b. Niagara Falls Ton lots, per pound 46 Less ton lots, per pound Corbortam, Ti 15-21%, B 1-2% Si 2-4%, Al 1-2%, C 4.5-7.5%, f.o.b. Suspension Bridge, N. Y., freight allowed. |
| Graphidox No. 4 Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%. Carload packed | briquets. Carloads, bulk | Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in., x D, Ton lots \$1.8 F.o.b. Wash., Pa.; 100 lb up 10 to 14% B |
| Ferromanganese Maximum contract base price, f.o.b., lump size, base content 74 to 76 pct Mn; Cents Producing Point Marletta, Ashtabula, O.: Alloy, W. Va.; Sheffield, Ala.; Portland, Ore. 9.50 | 50% Si 12.00 85% Si 16.10 65% Si 13.50 90% Si 17.25 Calcium Metal Eastern zone contract prices, cents per pound of metal, delivered. Ton lots \$2.05 \$2.95 \$3.75 Less ton lots 2.40 3.30 4.55 | freight allowed, 100 lb and over No. 1 No. 6 No. 79 Manganese - Boron, 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd. Ton lots |
| Clairton, Pa. 9.50 Sheridan, Pa. 9.50 Philo, Ohio 9.50 Add or subtract 0.14 for each 1 pct Mn above or below base content. Briquets, delivered, 66 pct Mn: Carloads, bulk 12.05 Ton lots packed 13.65 | Ferrovandium 35-55% contract, basis, delivered, per pound, contained V. Openhearth | Less ton lots Nickel-Boron, 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, del'd, less ton lots Sileas, Contract basis, delivered Ton lots 45.6 |



IF YOU ARE OVER 45 and your wife keeps insisting that you should have two chest x-rays every year...don't blame her. Thank her! Semi-annual chest x-rays (no matter how well you feel) are the best "insurance" you can have against death from lung cancer.

The cold fact is that lung cancer has increased so alarmingly that today you are six times more likely to develop lung cancer than a man of your age twenty years ago. Our doctors know that their chances of saving your life could be as much as ten times greater if they could only detect lung cancer before it "talks"... before you notice any symptom in yourself. That's why we urge you and every man over 45 to make semi-annual chest x-rays a habit—for life.

To see our new life-saving film "The Warning Shadow" call the American Cancer Society office nearest you or simply write to "Cancer" in care of your local Post Office.

American Cancer Society



\$1.15

\$12.00 12.05

\$6.25

\$1.33

\$90.00 ...\$110.00 ade, ara lle, oots,

\$1.15

\$1.50

\$1.14

\$1.12

10. 15.50; 16.75; ced. 17.35; sed. 17.35; und ... \$123 r 1b

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\$5.25

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\$1.20

\$ 2.05

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ns,

Pa.

on, ara ille, ots,

RAILWAY EQUIPMENT FOR SALE

Used - As Is - Reconditioned

Immediate Delivery
ALL-STEEL
ORE HOPPER CARS

RAILWAY CARS

All Types
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THE CLEARING HOUSE

News of Used and Rebuilt Machinery

Midwest Upturn Gradual . . . While spot reports of improved sales continue to come from the Midwest and pricing has indicated some firming, the situation still needs considerable improvement, with firms reporting a range of from 60 to 75 pct of all-out operation. Scattered reports of increasing inquiries, out-of-area shipments, and continuing strength in those dogged workhorses, sheet metal and stamping equipment, aren't enough to give the market more than a gradual increase in beginning October over late August and September.

Nonetheless, there's some feeling of improvement and at least a noticeable increase in activity. Though inquiries may come in flurries with a considerable lag between each flurry, they are coming in—and a few more are resulting in sales.

Encourage Inventory Buildup

... Improvement has been encouraging enough to bring on some inventory buildup and stronger purchasing by individual dealers. Buildup includes at least some of the material now becoming available in the East. Plant auctions in the area have been on the increase in the past two weeks, and these, coupled with a wave of selling in the East, have been factors that encouraged the slight advance in floor stocks.

Although there were at least a few reports that screw machines look slightly better, generally they are not regarded as a strong item. Turret lathes and some furnace equipment have reflected the general pickup in manufacturing activity in the area, but the increase here, too, is a mild one.

Urge Depreciation Review . . . The general consensus is that Machinery Dealers National Assn. will push even harder for more liberal depreciation rulings on used machine tools when Congress

returns to session. There's definite feeling that the used machine tool industry was dealt a bent card by the recent revision of depreciation rules. While nobody feels a real pinch, there's still murmuring that selling hasn't been made any easier by the new ruling.

"But," said one dealer, "I can prove that buying a new tool under the new rules will still cost more money in the long run than buying a good used tool." Nevertheless, pressure to revamp depreciation will be strong, and a number of dealers feel that the next session of Congress will see some positive results.

Confirming this are Washington reports that additional data on used machine tool costs has been called for and will be studied soon.

Coast Buying Improves . . . Meanwhile, suppliers to the West Coast are joining in the stronger feeling and have reported inquiries from that area as well as a sprinkling of new sales. This material doesn't seem aimed at defense work or the aircraft industries particularly, and the market hasn't been a boomer for some time. It does include some equipment aimed for the heavy industries on the Coast, however.

Chicago's large electronics industry still going strong and with increased use of sheet metal by many firms, this has been a relatively strong point. With housing and appliance industries going strong, equipment for working flat-rolled products and fasteners (recently) is a healthy item and one that will probably increase.

Automotive Suppliers Active ... Now, with a growing trickle of automotive releases, parts suppliers are expected to beef up their lines somewhat after a long summer wait. Small forming equipment, including items like punch presses, have been moving with increased firmness.